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FARM BUDGETING

THE FARMING INDUSTRY of the United States loses many hundred millions of dollars each year because production is overexpanded along some lines and underexpanded along others. These ups and downs in agricultural production are partly the result of changes made by farmers in acreages of crops and numbers of livestock. Changes of this kind are necessary and unavoidable, but too often they are overdone in some lines and underdone in others. Decisions as to these changes are often based upon the prices at or immediately before planting or breeding time and upon the crop yields and livestock production of the preceding season. The adaptation and application of the budget method, used in other business undertakings, is suggested as one way for farmers who act independently to meet the situation.

A farm budget is a carefully worked-out plan based on estimates as to how well a particular combination of crops or combination of crops and livestock will pay. These estimates are based upon the available information as to what the prices and crop and livestock production are likely to be during the year or period of years just ahead. Although prices, crop yields, and livestock production can not be forecast exactly, they can be foretold within broad enough limits to make it profitable to organize carefully and to focus attention upon the best available information relating to them. A method of doing this is outlined in this bulletin.

First, the method of procedure in making a budget is described. Next, the use of budgets in deciding upon the crops and livestock for the coming year and in keeping a profitable system of farming in mind is described. Finally, the information needed is mentioned, some of the sources of this information are listed, and forms to be used in making a budget are shown.

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FARM BUDGETING

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WHAT IS A BUDGET?

THE WORD BUDGET usually means a plan for future using or spending. In farming, a budget means a plan for the future use of the land, man labor, horse work, equipment, and other resources that the farmer has to work with. It includes the plan for the system of farming for the coming year, or for a period of years. It shows the crops to be grown, the livestock to be kept, and the estimated production, receipts, and expenses from the various sources. The budget is the businesslike way to work out and record farm plans. An illustration of a budget for a 180-acre farm in western Kentucky is shown in Table 1.

HOW A FARM BUDGET IS MADE

A budget for the coming year is made on the basis of the prices, crops and livestock requirements, and production expected for the year. The method of procedure to be followed in making a budget will vary with the system of farming being considered. The budget should show, in the simplest way possible, the expected crop and livestock production, the expenses, and the receipts for the particular system contemplated. The budget in Table 1 is suggested for a diversified crop and livestock system of farming.

First, the acreages of the different crops contemplated and the crop expenses that appear probable should be recorded. (See section A of the budget on page 2.[1]) The next step is to estimate the production of the different crops and how much will be needed for seed, how much will be fed to livestock, and how much will be sold. (See section B.) Then the number and kind of livestock to be kept should be indicated. Next the feed requirements and other expenses for the livestock should be recorded. (See section C.) Often it will be ad-

[1] The budget shown here is for the year 1927 and was worked out in cooperation with the operator of the farm in March, 1927. Available data as to the prices that had prevailed in the area during the past few years were analyzed, and a careful study was made of conditions likely to influence prices during the years just ahead. The prices of products to be sold and expense items used in working out this budget are shown in Table 3, page 17. Farm-accounting work had been done in the area during the three previous years, and these data had been carefully analyzed. The results obtained on two subexperiment-station fields located in the same type-of-farming area and livestock experimental data applicable to conditions in the area were reviewed. The crop yields and requirements used in working out the budget are shown in Table 4, page 17. The livestock production and requirements used are shown in Table 5, page 18.

visable to divide this section into two parts, one showing how the feeds on hand at the beginning of the year are to be used and the other showing the feed crops to be consumed by the livestock from the harvest season to the end of the year.

TABLE 1.—*Budget for 180-acre farm in western Kentucky*

SECTION A—ACREAGE AND CASH EXPENSES FOR CROPS

Crops	Acreage	Seeds and plants		Other expenses		
		Quantity	Cost	Kind	Quantity	Cost
		Bushels	*Dollars*			*Dollars*
Corn	30	3				
Tobacco	8			Superphosphate (acid phosphate).	2,400 pounds	26.40
				Canvas	80 yards	4.00
				Arsenate of lead	40 pounds	10.00
Wheat	20	25		Superphosphate (acid phosphate).	4,000 pounds	44.00
				Twine	40 pounds	4.80
				Threshing	280 bushels	33.60
Soy-bean hay	5	3¾				
Soy-bean seed	5	3¾				
Mixed hay	30	(1)	96.30			
Total			96.30			122.80

SECTION B—PRODUCTION AND DISPOSAL OF CROPS

Crops	Production (quantity)	Disposal			
		Feed (quantity)	Seed (quantity)	Sales	
				Quantity	Value
					Dollars
Corn, bushels	840	793	3	44	30.80
Tobacco, pounds	8,000			8,000	720.00
Wheat, bushels	280		25	255	344.25
Soy-bean hay, tons	6¼	6		¼	4.00
Soy-bean seed, bushels	75		7½	67½	135.00
Mixed hay, tons	30	18		12	192.00
Total					1,426.05

SECTION C—FEEDS AND OTHER EXPENSES FOR LIVESTOCK

Livestock	Number	Home-grown feeds		Purchased feeds			Other expenses	
		Kind	Quantity	Kind	Quantity	Cost	Kind	Cost
					Pounds	*Dollars*		*Dollars*
Cows	6	Corn	84 bushels	Bran	1,500	26.25	Breeding fees	15.00
		Soy-bean hay.	6 tons	Cottonseed meal.	1,500	28.50	Miscellaneous	6.00
		Mixed hay	do					
Young heifers	4	do	2 tons					
Veal calves	3	Whole milk	1,500 pounds					
Sows with pigs	3	Corn	384 bushels	Tankage	1,500	52.50	Breeding fees	10.00
							Miscellaneous	2.00
Poultry	100	do	100 bushels	Meat scraps	500	20.00	do	2.40
		Skim milk	1,032 pounds[2]	Oyster shells	500	6.25		
Work horses	5	Corn	225 bushels				Shoeing	15.00
		Mixed hay	10 tons				Miscellaneous	5.00
Total		Corn	793 bushels					
		Mixed hay	18 tons			133.50		55.40

[1] Includes 150 pounds red-clover seed at 27 cents; 150 pounds orchard-grass seed at 14 cents; 90 pounds alsike-clover seed at 22 cents; and 60 pounds redtop seed at 25 cents.

[2] Taken from whole milk used in the home.

TABLE 1.—*Budget for 180-acre farm in western Kentucky*—Continued

SECTION D—PRODUCTION AND DISPOSAL OF LIVESTOCK AND LIVESTOCK PRODUCTS

Livestock and products	Production (quantity)	Disposal			
		Fed to livestock (quantity)	Used in home (quantity)	Sales	
				Quantity	Value
					Dollars
Whole milk ..... pounds	30,000	1,500	3,500	25,000	535.50
Veal ..... do	480			480	38.40
Pork ..... do	4,800		800	4,000	340.00
Old hens ..... do	200			200	36.00
Young poultry ..... do	150		100	50	11.00
Eggs ..... dozen	900		[1] 170	730	146.00
Total					1,106.90

SECTION E—SUMMARY OF RECEIPTS AND EXPENSES

Receipts	Total value	Expenses	Total value
	Dollars		*Dollars*
Crops (sec. B)	1,426.05	Crops (sec. A):	
Livestock and livestock products (sec. D)	1,106.90	Seed	90.30
		Other crop expenses	122.80
		Livestock (sec. C):	
		Feed purchased	133.50
		Other livestock expenses	55.00
		Other expenses (estimated):	
		Hired labor (threshing)	25.00
		Machinery (new and upkeep)	60.00
		Fence (new and upkeep)	30.00
		Buildings (repair)	100.00
		Taxes, insurance, and other overhead	125.00
Total	2,532.95	Total	747.60
Net returns	1,785.35		

[1] Includes 20 dozen eggs used for hatching.

At this point it will usually be advisable to compare the data showing the feeds on hand at the beginning of the year and crops to be grown for feed, with data showing the expected feed requirements. Generally, before a cropping program and livestock program are finally decided upon, adjustments will need to be made in first one and then the other until a livestock program adapted to a particular cropping program is found. When the kind and numbers of livestock contemplated have been recorded, the quantities of the livestock and livestock products expected to be used in the home and to be sold should be indicated. (See section D.)

The expected value of the crop and livestock products to be sold and the expected cost of the purchased feeds, seeds, fertilizers, and other materials should then be indicated. (See cost and value columns of sections A, B, C, and D.) Next, these expected expenses and receipts should be brought together. (See section E.) In addition to the direct costs for crops and livestock, estimates should be included on the expense side for labor, new machinery and repair, new fences and fence repair, building repair, taxes, farm insurance, and other overhead items.

WHY A FARM BUDGET?

The purpose of working out farm budgets is to aid in determining in advance the returns that may reasonably be expected from the different systems of farming that may be followed, or the results that may reasonably be expected if changes are made in a particular one. Generally larger profits will result if plans for the system including probable expenses and receipts are carefully developed and compared with plans for other possible systems before the one chosen is actually put into operation. In this way many costly errors may be avoided. Specifically, the use of farm budgets carefully worked out has the following advantages:

Budgets help farmers more accurately to appraise different systems and practices so that the most profitable systems and practices may be decided upon. They offer a definite basis for comparisons between systems made up of different combinations of crop and livestock.

Budgets help to keep a good balance between crops in a crop system of farming and a good balance between crops and livestock in a crop and livestock system.

Budgets help to determine in advance how much seed, fertilizer, and other supplies are likely to be needed during the year.

Budgets help to determine how much feed will be needed for the livestock, how much will need to be bought, and how much is likely to be available for sale.

Budgets help in determining the amount of cash that will be needed to operate the farm, and when it will be needed, so that the necessary financial arrangements may be made.

Budgets help in determining the total net returns that may be expected so that living expenses, payments, or investments may be adjusted accordingly.

Stated more generally, budgets are advised because conditions affecting farm returns are continually changing. These changes are reflected in prices, crop yields, livestock production, and crop and livestock requirements.

Two kinds of price changes are of particular significance to farmers. First, there are price trends or long-time upward or downward movements of prices. These long-time upward or downward movements are usually different for different products. For example, in South Dakota for the five-year period 1921 to 1925, corn increased in price over the five-year period from 1911 to 1915, 8 per cent, wheat increased 20 per cent, potatoes 18 per cent, hogs 18 per cent, and beef cattle 5 per cent, whereas the price of barley decreased 20 per cent and that of oats decreased 14 per cent. In western Kentucky the price of dark tobacco, the principal product of the section, has been little, if any, higher during recent years than during pre-war years, whereas the prices of most other farm products of the section have been considerably higher during recent than during pre-war years. Similar price changes are continually taking place in most farming sections both for products sold and for expense items.

Other price changes of interest to farmers are price cycles. The prices of many farm products tend to move upward for a period of years and then downward for a more or less similar length of time. For example, hog prices usually tend upward from one and one-half to two and one-half years and then downward for about the same length of time. For most other species of livestock the upward and downward movements are for longer periods. There appears to be a tendency for beef-cattle prices to go up from six to nine years and

then down for a somewhat similar length of time. In the case of horses the upward and downward price movements tend to extend over periods of 10 to 15 years. The most important factor in determining the length of these upward and downward movements is the length of time required to expand or contract materially any enterprise after unusually high or unusually low prices are reached.

Price trends and cycles are due to developments that are world-wide in scope. Changes in the habits and tastes of people, in channels of trade, and in transportation costs and the opening up of new production areas all play their part in causing price trends. The adjustments in production plans that farmers make in response to prices are largely the cause of price cycles.

In addition to price trends and cycles the amounts of crops and livestock held over from one year to the next vary and have an influence on the prices of the following year. The amounts of different products that will be taken at given prices vary with industrial activity and related factors. As a result of these and other factors, farmers are continually facing new price situations.

On the production side new practices are developed for cultivating and harvesting crops and for feeding livestock, and these new practices result in different man labor, horse work, feed, and other requirements. The wheat binder, the corn binder, the tractor, the small combine, each has had or is having its influence on the amounts of labor needed in growing particular crops and on the net returns obtained. Crop yields are continually being affected by insect and crop pests. For example, the boll weevil has been responsible for a reduced yield of cotton and has made it desirable to consider changes on most farms in the Cotton Belt. Now the corn borer promises a similar problem for the Corn-Belt farmer. Livestock are not without their diseases and parasites.

Many of these changes are more or less permanent in nature and may be known. Other developments may be anticipated with some degree of accuracy. Obviously such things make changes advisable in the crops to be grown and the livestock to be kept on a particular farm. The crops and livestock that will result in the largest returns at one time will not always give good results at some later time.

In their efforts to cope with these changed or new situations farmers are continually making adjustments in crops, livestock, and practices. Usually these adjustments are the result of comparisons of the returns expected from different systems and practices. Some of these comparisons are simple and easily made and some are complex and involved. Some of them are crudely and imperfectly made and others are carefully worked out.

These comparisons are often based upon facts taken from memory, and are made without the use of pencil or paper. Sound conclusions may be reached in this way in the case of simple comparisons, but most problems in present-day agriculture are too involved to make this method advisable. In highly commercialized farming, usually, a change in one enterprise makes changes desirable in several other enterprises. Then there is the ever-present tendency to give too much weight to the prices, the yields, and the production that result from conditions more or less temporary in nature, and this tendency is likely to be more pronounced when the memory alone is depended

upon. Generally, safer conclusions will be reached and larger profits will result from the farming operations if the facts considered are carefully organized and if judgments are completely formed and recorded and if the comparisons between enterprises and systems are carefully worked out. This involves the use of farm budgets.

WHEN TO MAKE FARM BUDGETS

December, January, and February are the budget-making months in most parts of the country, and in some sections March is used. These are the months when a farmer usually has the most time to do uninterrupted thinking. When the crops are harvested a farmer can usually find time to take stock, review the successes and failures of the past season, compare the results actually obtained with those expected at the beginning of the year, and make a budget for the coming year.

HOW TO USE THE BUDGET METHOD IN MAKING FARM PLANS

As suggested above, an important use of farm budgets is in reaching conclusions as to crops and livestock that are likely to prove most profitable under given conditions. In this connection it should be kept in mind that farming is a forward-looking undertaking and that plans should be made on the basis of conditions expected in the future. One should be as familiar as possible with the results of the past. However, the results of the past should be interpreted in the light of conditions expected in the future. This is what is attempted in making farm budgets.

One use of farm budgets is in finding the crops and livestock—the acres of each crop and the number of each kind of livestock—that will probably result in the largest returns during the coming year. Another use is in finding the crops and livestock that will probably result in the largest returns over a period of years. The former is usually considered the plan for the coming year and the latter the long-time plan or the system of farming.

MAKING PLANS FOR THE COMING YEAR

The kinds of crops and livestock should usually remain the same for a period of years, but it is seldom possible or advisable to plan to grow the same acreage of each crop or keep the same number of each class of livestock each year. If nothing else, variations in the number of livestock born, and crop failures of the previous year, will make this impossible in some cases and inadvisable in others. Then there are lines of production, like dairying or handling a breeding herd of beef cattle, that a farmer must grow into; they can not well be developed in a year. Furthermore, if a farmer makes a study of the conditions that influence prices he will usually be able to form more accurate judgments as to prices expected during the coming year for at least some of the products than those of the past year or even the average for a period of years. It follows that the plans for each year should be different, in at least some respects, from the plans for any other year.

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A farmer who has definitely in mind a long-time plan should make a budget showing the returns expected and the prices that appear most likely to prevail during the coming year. If he has no long-time plan definitely in mind, perhaps the best starting place is with the crops and livestock of the previous year. In either case the next step is to make comparisons as to the changes in returns that appear probable if increases are made in the acreage of crops and the numbers of livestock for which relatively high prices are expected and decreases in those lines in which relatively low prices are expected.

Many possible alternatives may be eliminated or tentatively decided upon by these simple comparisons. For example, a farmer who is accustomed to growing wheat along with other crops may be considering whether it will be advisable to substitute barley for a part of the wheat. Suppose the cropping program calls for 60 acres of spring wheat, and the farmer is trying to decide whether to substitute barley for 20 acres of the wheat. Granting that the substitutions could be made without affecting other enterprises, he would need only to consider the costs, prices, and yields of these two crops. A method of working out a comparison of this kind follows:

Probable income from wheat:		
255 bushels (20 acres at 14 bushels less 25 bushels seed) at $1.35		$344.25
Threshing 280 bushels at 12 cents	$33.60	
Twine, 40 pounds at 12 cents	4.80	
Fertilizer, 2 tons at $22	44.00	
Total, threshing, twine, and fertilizer		82.40
Net income from wheat		261.85
Probable income from barley:		
445 bushels (20 acres at 24 bushels less 35 bushels seed) at 75 cents		333.75
Threshing 480 bushels at 10 cents	$48.00	
Twine, 45 pounds at 12 cents	5.40	
Fertilizer, 2 tons at $22	44.00	
Total, threshing, twine and fertilizer		97.40
Net income from barley		236.35
Probable excess in favor of wheat		25.50

It will sometimes be advisable to attempt simple comparisons of this kind where three or more enterprises are involved. Usually, however, when changes are being considered that affect more than two enterprises and often when changes for only one or two are contemplated, the problem is too complex for such simple comparisons. Sometimes it may be advisable to consider the substitution of a crop that has different man-labor and horse-work needs or that requires attention at a different time of the year from the crop to be displaced. Such substitutions usually mean either more thorough or less thorough cultivation of other crops. Often changes may be considered that will mean more or less home-grown feed or a different ration for the livestock. In the case of involved changes of these kinds other complete budgets are recommended.

It will sometimes be advisable to work out several trial budgets each indicating the farmer's judgment as to the returns that may reasonably be expected during the coming year from different combinations

of crops and livestock. Each of these budgets should carry data similar to those suggested in Table 1, pages 2 and 3.

It is important that each of these budgets be worked out on a similar basis. That is, a farmer should not use the prices, yields, and other production relations of the past years for one budget and then use those expected in the future for other budgets. Since systems of farming are planned for the future, the prices and production relations used should be those that are expected in the future. In some cases it may be advisable to take the feeding requirements and livestock production of the past year and work out a financial statement, using normal crop yields and expected prices. Whenever experience or available data warrant, however, it will be advisable to adjust the livestock data, as well as the yields, to a normal basis.

The budgets worked out in this way should then be compared. After taking into account the amount of risk involved under each, the changes each necessitates in livestock on the farm at the time, the changes from the crops of the past season, and the probable effect of each change on the returns of the following years, one of these budgets should be decided upon as the plan for the coming year. Budgets of this kind should be made at the beginning of each year.

BUDGETS WITH VARYING PRICES AND YIELDS

Even after a plan for the coming year has been carefully worked out, adjustments in this plan may be advisable during the year. Less favorable production may be obtained along some lines than were anticipated, and more favorable production may be obtained along other lines. Higher prices may be obtained for some products than were anticipated and lower prices for others.

In cases in which the prices contemplated for the crops and livestock vary widely from year to year, or in which the information to be used as a basis for judgments as to prices, is meager, it may be advisable to work out different budgets for the crops and livestock decided upon for the year, and to use different prices, each being based upon a particular set of prices within the range of probability. That is, the expenses, receipts, and net returns that will probably result from a given combination of crops and livestock with different prices may be worked out.

In areas in which the yields of crops vary widely from year to year it may be advisable to work out different budgets for the same system, using the different yields which are within the range of probability.

Such budgets, worked out with varying prices and yields, will help a farmer to determine maximum and minimum expectations from his crops and livestock, and to anticipate possible adjustments that may be necessary during the year. For example, crop yields below normal may make it advisable to sell livestock with less finish or at lighter weights, or may make it advisable to reduce the number of one kind of livestock and increase the number of another. Or it may be well to make changes in the feeding plans during the year.

Prices and production can not be forecast with enough accuracy to make it unnecessary to be on the lookout for possible improvements through adjustments of this kind. The more carefully a farmer has

thought through these problems in advance the better prepared he will be to meet such conditions as they arise.

PLANNING A SYSTEM OF FARMING

Often prices or conditions on the farm may so change as to make it advisable to reorganize the farm completely and introduce a new system of farming or a system markedly different from the one that has been followed. For example, a farmer may be engaged in dairying; that is, in growing feed crops and selling dairy products, and conditions may be such as to make it advisable to consider feeding beef cattle and hogs. Or a farmer may be engaged in growing cotton along with a small amount of feed for the work stock, and conditions may be such as to make it advisable to consider dairying or some other kind of livestock farming.

In trying to decide whether a marked change of this kind will be advisable in the system of farming that is being followed, a farmer should first look about in his own community, and in other communities that have similar conditions, and consider the results that other farmers are getting from other crops and livestock. A system that has given good results on one farm may not give good results on another farm even in the same community, since no two farms are exactly alike, and may not give good results on the same farm under different conditions, but this general appraisal of other systems is a good preliminary move. From it a farmer should get a general idea of other crops, livestock, and systems that are adapted to his conditions.

It is at this point that the budget plan may again be used to advantage. The use of carefully worked-out budgets is the most accurate way to compare the various systems that may be considered. While the budgets to be used in this connection should be made on the yearly basis, they should be based upon average yields and production requirements and upon the average prices expected during the period of years just ahead. They should show the average of the acres of crops and the numbers of livestock, the estimated production, expenses, and receipts for the period. The period considered should be at least as long as the rotation contemplated. If special buildings or machinery are needed, which is often the case, a 5-year or 10-year period or even a longer period should be considered.

It will be advisable to study available information and to formulate judgments as to prices, crop yields, livestock production, and crop and livestock requirements, as described above, for such crops and livestock as appear to have possibilities on the farm that is being considered. Next, a budget similar to that suggested on pages 2 and 3 should be prepared for the present system. Following this, the farmer should consider desirable combinations of crops and livestock for other systems and work out budgets for them.

In deciding upon the acreage of the different crops and the numbers of the different classes of livestock to include in the systems that are being considered, the seasonal as well as the total man labor and horse-work needs of each crop and class of livestock should be kept in mind. It is generally advisable to consider only such combinations of crops and livestock as can be taken care of

by the men and teams that are likely to be available. If systems are to be compared with markedly different man labor and horse-work requirements, the cost of providing the added labor must be considered.

The budgets worked out in this way should be compared. In comparing the budgets of the different systems, each should be considered critically for the purpose of determining how well the principal crops are adapted to the area, the effect of each system upon the fertility of the soil, the kinds of markets that are available for each of the products to be sold, how nearly the feed crops provide a balanced ration for the livestock if the system includes livestock, how well the crops and livestock fit together, and how well the nonmarketable products, such as pasture, straw, stover, and skim milk are utilized with each. With these facts, and the returns that may reasonably be expected from each in mind, one of the systems should be selected as the system to be followed. Presumably this will be the system that, other things being equal, promises the largest returns on the basis of normal yields and production requirements and prices expected for a period of years.

It is not usually necessary to make comparisons of this kind, involving other systems of farming, each year. After a system has been decided upon it should be followed until conditions of the period or on the farm have undergone a marked change. A farmer should continually be on the alert, however, for new developments and should consider carefully the possibilities of other systems whenever conditions warrant.

KEEPING ACCOUNTS AGAINST THE BUDGET

After a budget has been made an inventory should be taken, the expenses and receipts should be kept during the year, and at the end of the year the returns actually obtained should be compared with those contemplated in the budget. If a budget has been made for a period of years it may also be included in the comparisons. A method of recording data for these comparisons is shown in Table 2.

Accounts provide material that is essential to a thorough-going analysis of the farm business as it has been operated in the past. They are valuable in helping to locate the strong and weak points of the system being followed. They aid in locating the leaks in the profits. For example, the crop yields and requirements of that year may be compared with those contemplated in the budget and with those obtained by other farmers. The returns for the feed consumed by the livestock may be compared with the returns contemplated in the budget and those obtained by other farmers. Accounts provide a basis for determining how the labor, building, machinery costs, and other expenses compare with those contemplated in the budget and those prevailing on other farms. Attention to such points makes economical production possible.[2]

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[2] For more complete discussion of farm accounts, see the following bulletins:

LADD, C. E. A SYSTEM OF FARM COST ACCOUNTING. U. S. Dept. Agr. Farmers' Bul. 572, 15 p. 1914.

THOMSON, E. H. FARM BOOKKEEPING. U. S. Dept. Agr. Farmers' Bul. 511, 37 p., illus. 1912.

For method of analyzing farm business see: DIXON, H. M., and HAWTHORNE, H. W. A METHOD OF ANALYZING THE FARM BUSINESS. U. S. Dept. Agr. Farmers' Bul. 1139, 40 p., illus. 1920.

TABLE 2.—*Comparison of acres of crops, numbers of livestock contemplated, and expected receipts and expenses for long-time plan, and plan for coming year, with results actually obtained, 180-acre farm* [1]

Item	Last year	Long-time plan	Plan for coming year	Actual results, end of year
Crop:	*Acres*	*Acres*	*Acres*	*Acres*
Corn	30	30	30	
Tobacco	11	10	8	
Wheat	7	10	20	
Soy-bean hay	7	10	5	
Soy-bean seed			5	
Mixed hay	50	30	30	
Pasture	46	51	46	
Livestock:	*Number*	*Number*	*Number*	*Number*
Work stock	5	5	5	
Cows	2	10	6	
Young cattle	2	5	4	
Sows	1	3	3	
Other hogs	5	24	24	
Chickens	45	100	100	
Results:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Farm receipts	1,840	2,886	2,533	
Farm expenses	689	864	748	
Net returns	1,151	2,072	1,785	

[1] The operator of the farm whose returns last year and whose budgets for a period of years and for the coming year as shown above has been depending upon crops as sources of income. He plans in the future to combine some cash crops and dairying. One reason that the plan for the coming year differs from the long-time plan is that the operator considers it advisable to buy only 4 cows during the coming year and grow into dairying.

Accounts, if accurately kept and intelligently interpreted, may become the best source of information in helping to determine the production that may reasonably be expected to result from a particular practice, enterprise, or system of farming. In making farm budgets an opportunity is offered to use these accounting data in connection with experimental data and information on prices in planning future operations. Accounts help a farmer to localize and interpret experimental results in terms of conditions on the farm. This will be discussed further in a later section. Most State colleges of agriculture have account books suitable for recording inventories, expenses, and receipts which they furnish at a small cost. Such books can usually be obtained from the county agent or by writing to the State college of agriculture.

INFORMATION NEEDED IN MAKING A BUDGET

The returns actually obtained in farming probably will not approximate the returns contemplated in a budget unless the prices, requirements, and yields used in making the budget approximate those that actually prevail. Those used in making the budget should represent the best judgment of the one doing the planning, as to the production and prices that may reasonably be expected for the particular farm and period, after considering all the information available. The information available that will be useful may be divided into two classes—that relating to prices and that relating to production.

PRICE INFORMATION TO BE USED

In order to plan for the coming year and at the same time to keep a permanent and profitable system of farming in mind, judgments

must be formed as to prices expected for the coming year and for the period of years just ahead.

Average prices, price trends, and long-time demand changes must be known to form judgments as to prices for a period of years. In the case of prices for the coming year, in addition to the above, the facts as to supplies on hand, production in competing areas and countries, and demand changes likely to come about during the year are important. Such information is to be found in market-news reports, agricultural-situation reviews, and in agricultural-outlook statements issued by State and Federal agencies.

SOURCES OF PRICE INFORMATION

The following are the principal sources of information on prices:

Market reports as issued by the Federal market news service and distributed by mail, radio, and through the farm newspapers.

Crops and Markets, the monthly periodical issued by the United States Department of Agriculture.

Special commodity price studies issued by the United States Department of Agriculture and many of the States.

The Agricultural Situation, a monthly publication issued by the United States Department of Agriculture and similar reports issued by several of the State colleges of agriculture and extension services.

Yearbooks of the United States Department of Agriculture; yearbooks of State departments of agriculture and State agricultural statisticians.

Annual agricultural-outlook reports, issued by the United States Department of Agriculture, and outlook reports issued by State colleges of agriculture and extension services in many States.

Statistical bulletins issued by the United States Department of Agriculture.

MARKET NEWS REPORTS

The United States Department of Agriculture market news service and State departments of agriculture review the market situation for the principal farm commodities weekly and monthly during the year. These reviews are distributed by mail, by radio, and in weekly and farm papers. The prices on future-trading markets indicate the judgment of dealers and speculators as to the trends in prices during the months just ahead.

CROPS AND MARKETS

Crops and Markets is the monthly publication of the United States Department of Agriculture which carries the principal statistics on crop and livestock production, movements, prices, stocks, and foreign trade on all products covered by the department's work. It carries information as to the acres of crops planted and harvested, the condition of these crops during the year, estimates of the number of livestock on farms, the amounts of different products marketed and on hand, and other related information on crop and livestock production and prices. Copies of Crops and Markets may be seen in the office of the county agent. The subscription price is 60 cents a year.[3]

SPECIAL COMMODITY-PRICE STUDIES

In recent years the United States Department of Agriculture and some of the State colleges of agriculture have undertaken careful

[3] Payable in cash or money order to the Superintendent of Documents, Government Printing Office, Washington, D. C.

studies of the factors affecting the prices of specific farm commodities and thorough-going analyses of conditions confronting producers of certain commodities. Among the available bulletins that discuss factors affecting prices of specific commodities are the following: Department Bulletin 1440, Factors Affecting the Price of Hogs; Department Bulletin 1351, What Makes the Price of Oats?; Department Circular 416, Demand, Marketing, and Production of Oregon and Washington Prunes.[4] A letter to the State college or extension service may bring you State bulletins relating to local studies.

THE AGRICULTURAL SITUATION

The Agricultural Situation is a summary of national farm conditions issued monthly by the United States Department of Agriculture. It carries a general summary of conditions throughout the country, and from time to time it prints special reports for particular sections or commodities. It also carries data showing price trends during the past few years. This publication may be obtained from the United States Department of Agriculture; the present subscription price is 25 cents per year. It is sent to all county agricultural agents. Many of the State colleges of agriculture issue similar reports, which may be obtained from the county agent or by writing to the State college of agriculture.

YEARBOOKS

Each year the United States Department of Agriculture publishes the Yearbook which carries, among other things, a large amount of statistical information on prices. Each Congressman and Senator send out a number of these Yearbooks free. Other copies may be obtained from the Superintendent of Documents, Washington, D. C., at $1.50 per copy.

Most of the State departments of agriculture issue yearbooks which carry much of the information for the particular State carried in the Yearbooks of the United States Department of Agriculture and usually some additional information.

ANNUAL AGRICULTURAL OUTLOOK REPORTS

In January of each year the Bureau of Agricultural Economics of the United States Department of Agriculture and many of the State colleges of agriculture issue agricultural-outlook reports which discuss the probable trends in prices during the coming year for each of the principal farm commodities. When the intentions-to-plant reports, which carry information as to planting intentions of farmers regarding the principal crops are issued in the spring, additional statements as to the outlook may accompany them. Outlook reports for crops planted other than in the spring are issued at other times during the year. Reports that show farmers' hog-breeding intentions are issued in June and December. Similar reports are issued from time to time for other classes of livestock. These reports may be seen in the office

[4] CRITCHFIELD, B. H. DEMAND, MARKETING, AND PRODUCTION OF OREGON AND WASHINGTON PRUNES. U. S. Dept. Agr. Circ. 416, 48 pp., illus. 1927.
HAAS, G. C., and EZEKIEL, M. FACTORS AFFECTING THE PRICE OF HOGS. U. S. Dept. Agr. Bul. 1440, 68 pp., illus. 1926.
KILLOUGH, H. B. WHAT MAKES THE PRICE OF OATS? U. S. Dept. Agr. Bul. 1351, 40 pp., illus. 1925.

of the county agent or may be obtained by writing to State colleges of agriculture or to the United States Department of Agriculture.

STATISTICAL BULLETINS

The United States Department of Agriculture is issuing a series of statistical bulletins which give all pertinent statistics for the chief agricultural commodities. The series includes a group of four price bulletins, which tabulate the prices paid to producers for the chief farm products over a series of years.

Of the sources of price information mentioned, the outlook reports and the Agricultural Situation carry conclusions as to probable price trends during the months just ahead. Crops and Markets and intentions-to-plant reports carry information such as is considered in arriving at the conclusions indicated in these reports. Bulletins based upon special price studies usually carry conclusions for a somewhat longer period. The other sources mentioned carry data that are useful in making an analysis of the price situation of the principal farm commodities.

In reaching conclusions as to prices care should be exercised lest too much weight be given to those of the present or of the immediate past. It should be remembered that the prices of farm products fluctuate widely from year to year and that the changes are seldom uniform. Research studies made by the United States Department of Agriculture and the State colleges of agriculture show price cycles or fairly definite price trends or both for many farm products. For these reasons, as much time as possible should be given to the study of average prices, price trends, and market-outlook information and to the consideration of studies made by others before the prices to be used in making the budget are decided upon.

PRODUCTION INFORMATION TO BE USED

Generally normal or average crop and livestock requirements, yields, and production should be used in making a budget. The yields for crops and the production for livestock vary from year to year, but the variations depend largely upon such factors as temperature, rainfall, insect pests, and livestock diseases, which can not be anticipated with any degree of accuracy. The best the farmer can do is to review his own experience and such records as are available for his farm, study records and accounts showing the results on other farms, and data showing the results of experiments in growing crops and feeding livestock; then consider all of these facts in the light of conditions on his own farm, and make the best approximations possible.

In the case of crops, an effort should be made to find out the yields that may reasonably be expected from different quantities of seed and fertilizer and the quantities of these and other materials that will probably result in the largest returns, in the light of conditions on the farm and of prices that may reasonably be expected. In the case of livestock, an effort should be made to determine the production that may reasonably be expected to result from different rations and the particular ration that will result in the largest returns, considering the home-grown feeds and pasturage available and the prices expected for feeds, livestock, and livestock products.

SOURCES OF PRODUCTION INFORMATION

Among the important sources of information on production are the following:

Records for the farm and similar records in the community.
Records showing county and State crop yields.
Books, bulletins, and reports showing the results of livestock feeding and crop experiments of the United States Department of Agriculture and State colleges of agriculture.
Demonstrations showing the results of practices in the community.

RECORDS FOR FARM AND COMMUNITY

Records showing the results that have been obtained on one's own farm from different fertilizer and cultivation practices for crops and feeding practices for livestock are extremely useful in forming judgments as to crop and livestock production that may reasonably be expected in the future. Similar records for other farms in the community or with similar conditions are also useful.

During the past few years thousands of farmers in different parts of the United States have kept records of farming operations in cooperation with the State colleges of agriculture and the United States Department of Agriculture. These records are usually summarized and analyzed by State and Federal agencies and the results are made available in bulletins and reports. Such reports may be obtained from the county agent or by writing to the State college of agriculture or the United States Department of Agriculture.

COUNTY AND STATE YIELDS

The Yearbooks of the United States Department of Agriculture carry data that show State crop yields for the principal crops for several years. The yearbooks of the State departments of agriculture carry data that show county crop yields for a period of years. Such data indicate in a general way trends in yields and the variations that are probable for a particular year.

EXPERIMENTAL RESULTS

Ever since its establishment in 1862, the United States Department of Agriculture has been conducting experiments in growing crops and in feeding livestock. Since the passage of the Hatch Act in 1887, and in some cases before, experimental work of a similar kind has been done by the State agricultural experiment stations. More recently, branch experiment stations and experiment fields have been established by most of the States, and now experimental results are available on crop and livestock production which are applicable to most sections of the country. These experiments show the results of feeding different rations to livestock and of different practices in growing crops. These results are published from time to time in bulletins and special reports, which may be obtained from the county agent or by writing to the State colleges of agriculture or to the United States Department of Agriculture. Books are also published from time to time discussing the results of experimental work.

DEMONSTRATIONS IN COMMUNITY

In most parts of the country, in cooperation with the county agents, farmers conduct demonstrations to show the possibilities of practices or lines of production other than those commonly followed in the community. Such demonstrations are very valuable if new practices or new lines of production are contemplated. The careful consideration of practices and systems worked out by successful farmers is also helpful.

Of the sources mentioned, the publications which carry results of experiments are likely to be most useful in determining the yields that will probably result from the use of different fertilizers or other practices, and the livestock production that will probably result from different rations. One's own experience and records showing the results on other farms will be useful in localizing and interpreting the experimental data in terms of conditions on the farm and in determining the crop and livestock production that will probably result from the practices commonly followed in the community.

A careful study of production information, such as that described above, will provide a basis for conclusions as to the crop yields that are most likely to be obtained, the quantities of the different kinds of feeds normally required to produce 100 pounds of pork or to put 100 pounds of gain on steers, or to keep a cow or a horse a year. A similar study of the information mentioned and such other information as may be available on prices will provide a basis for conclusions as to the prices that are most likely to prevail during the coming year and during a longer period. A method of recording conclusions of this kind is shown in Tables 3, 4, and 5, pages 17 and 18.

The analysis of these data and the formulation of judgments as to production and price relations that appear probable at a particular time constitute one of the preliminary yet essential steps in the budget-making process. Such an analysis provides a basis for adjusting the practices and enterprises to the economic conditions of the time.

FORMS FOR FARM-BUDGET MAKING

In the following pages a set of sample forms is shown. These forms illustrate a method of organizing facts that should be considered and the kinds of forms needed to work out a farm budget. The facts may be organized and a farm budget made by observing the following procedure:

First, list the products that appear to have possibilities as sources of income, as indicated by the marketable-products column, Table 3. Next list the different kinds of feed, seed, fertilizer, and other items that are to be used in getting these products, as indicated by the expense-items column below. Next, an examination should be made of the data as to average prices, price trends, and the market outlook for each of these marketable products, and expense items should be examined. When as much time as practicable has been given to the study of the price situation, enter the prices that appear probable for the items that will need to be bought and for the products to be sold. Entries should be made showing the prices expected during the coming year and the average prices expected for a period of years.

TABLE 3.—*Prices for products to be sold and expense items*

Products to be sold			Expense items		
Item	Expected average prices, next 5 years	Expected prices coming year [1]	Item	Expected average prices, next 5 years	Expected prices coming year [1]
Cash crops:	*Dollars*	*Dollars*	Feeds:	*Dollars*	*Dollars*
Wheat, per bushel	1.25	1.35	Bran per hundred weight	1.75	1.75
Tobacco, per pound	.11	.09	Cottonseed meal, do	2.10	1.90
Soy beans, per bushel	2.00	2.00	Tankage, do	3.50	3.50
Corn, do	.70	.70	Meat scraps, do	4.00	4.00
Mixed hay, per ton	16.00	16.00	Oyster shells, do	1.25	1.25
Livestock:			Fertilizer:		
Whole milk, per hundred weight	2.10	2.10	Acid phosphate, per ton	22.00	22.00
Veal, per pound	.08	.08	Seeds:		
Hogs per hundred weight	8.50	8.50	Red clover, per pound	.27	.27
Old hens, per pound	.18	.18	Orchard grass, do	.14	.14
Young poultry, do	.22	.22	Alsike clover, do	.22	.22
Eggs, per dozen	.22	.20	Redtop, do	.25	.25
			Miscellaneous:		
			Canvas, per yard	.05	.05
			Arsenate of lead, per pound	.25	.25
			Twine, do	.12	.12
			Threshing wheat, per bushel	.12	.12

[1] The prices in the "coming year" columns were used in making out the budget shown on pp. 2 and 3.

TABLE 4.—*Normal yields and production requirements for crops—per acre basis* [1]

Crops	Seed	Fertilizer and other materials		Yield
		Kind	Quantity	
Tobacco		Superphosphate (acid phosphate)	300 pounds	1,000 pounds.
		Arsenate of lead	5 pounds	
		Canvas	10 yards	
Corn	⅛ bushel			28 bushels.
Wheat	1¼ bushels	Superphosphate	200 pounds	14 bushels.
		Twine	2 pounds	
		Threshing	12 cents per bushel.	
Soy-bean hay	¾ bushel			1¼ tons.
Soy-bean seed	do			15 bushels.
Mixed hay	Red clover, 5 pounds; orchard grass, 5 pounds; alsike clover, 3 pounds; redtop, 2 pounds.			1 ton.

[1] The yields and production requirements shown here were used in working out the budget shown on pp. 2 and 3.

List the crops that are being considered for the farm as indicated by Table 4. Next enter the yields and the seed, fertilizer, and other material requirements necessary to get these yields. The yields should represent one's best judgment as to normal expectations from the requirements shown and practices contemplated. Often it will be advisable to record 2 or more yields for a particular crop, each representing the production expected from a particular quantity of fertilizer, seed, or practice.

TABLE 5.—*Normal feeding requirements and production for livestock*[1]

Livestock	Home-grown feeds		Purchased feeds		Production	
	Kind	Quantity	Kind	Quantity	Kind	Quantity
Dairy cows, per head.	Corn	14 bushels	Bran	250 pounds	Whole milk	5,000 pounds.
	Soy-bean hay.	1 ton	Cottonseed meal.	do	Veal [2]	80 pounds.
	Mixed hay	do				
Heifers, per head	do	½ ton				
Veal calves	Whole milk	500 pounds				
Hogs, 1 sow, 8 pigs.[3]	Corn	128 bushels	Tankage	500 pounds	Live weight	1,600 pounds.
Poultry (per 100 hens).	do	100 bushels	Oyster shells	do	Old hens	200 pounds.
	Skim milk	1,032 pounds.	Meat scraps	do	Young poultry.	150 pounds.
					Eggs	900 dozens.
Work horses, per head.	Corn	45 bushels				
	Mixed hay	2 tons				

[1] The feed and other requirements and production shown here were used in working out the budget shown on pp. 2 and 3.

[2] The veal production shown is based upon the assumption that 1 veal calf weighing 160 pounds would be sold for each cow every other year.

[3] The requirements shown are based upon 8 bushels of corn and 31 pounds tankage per 100 pounds of gain.

List the different classes of livestock being considered as shown in Table 5. Next enter the normal yearly feed and other requirements and production for each class of livestock. Often it may be advisable to record varying amounts of feed for a particular class of livestock and the production that will normally result from such feed, the feed requirements being based upon different rations.

Tables 3, 4, and 5, when carefully filled out, provide basic data to be used in working out budgets for the different systems considered.

FORMS FOR THE FARM BUDGET

Section A: Acreage and cash expenses for crops

Crops	Acreage	Seeds and plants		Other expenses		
		Quantity	Cost	Kind	Quantity	Cost
Total						

When a cropping program has been tentatively decided upon, list the kinds of crops and acreage of each as indicated by Section A. Data for the remainder of the form may be obtained by multiplying the figures in the acre column by the production-requirement data recorded in Table 4, and the amounts obtained in this way by the prices shown in Table 3.

In deciding upon a cropping program, the number of acres of each crop that a given crew can handle and the extent to which different crops compete with and supplement and complement each other should be taken into account. (See budget, pp. 2 and 3.)

Section B: Production and disposal of crops

Crops	Production (quantity)	Disposal			
		For feed (quantity)	For seed (quantity)	For sale	
				Quantity	Value
Total					

List the crops again in the same order as on the preceding form, and enter the expected production as indicated in Section B. The production data may be obtained by multiplying the figures in the acre column of Section A by the crop yields listed in Table 4. The quantity of each crop that would be fed to livestock, used in the home and sold, should be indicated. The value of the quantities to be sold may be obtained by multiplying the quantities shown on this form by the prices shown in Table 3. If systems are to be compared that make available different quantities of products for home use, a value column headed "Used in the home" may be added. (See budget, pp. 2 and 3.)

Section C: Feeds and other expenses for livestock

Livestock	Number	Home-grown feeds		Purchased feeds			Other expenses	
		Kind	Quantity	Kind	Quantity	Cost	Kind	Cost
Total								

When a livestock program has been tentatively decided upon, list the different classes of livestock and enter the number of each opposite the class, as in Section C. Next calculate the amounts of home-grown and purchased feeds and other expenses. This may be done by taking the data in Table 5 and multiplying them by the numbers of livestock recorded on this form. The quantities of home-grown feed to be used should be compared with the quantities expected to be available for feed, shown on the preceding form. The value of the purchased feeds will be obtained by multiplying the quantities shown on this form by the prices recorded in Table 3. (See budget, pp. 2 and 3.)

It will often be advisable to work out two tables similar to this form, one showing how the feeds on hand at the beginning of the year are to be used and the other showing the feeds to be consumed by the livestock from the harvest season to the end of the year.

Section D: Production and disposal of livestock and livestock products

Livestock and products	Production (quantity)	Disposal			
		Fed to livestock (quantity)	Used in home (quantity)	Sales	
				Quantity	Value
Total					

List the livestock and livestock products in the same order that they are entered on the preceding form, as indicated by Section D. Data for the production column may be obtained by multiplying the figures in the "number" column, Section C, by the production data recorded in the last column of Table 5. The quantity to be fed, used in the home, and sold should be entered. The quantities to be sold, multiplied by the prices shown in Table 3, will give the data for the "value" column. (See budget, pp. 2 and 3.)

Section E: Summary of receipts and expenses

Receipts	Total value	Expenses	Total value
Total		Total	
Net returns			

Bring forward the "value" and "cost" totals on the four preceding forms and enter "value totals" under receipts, and the "cost totals" under expenses. In addition to the direct costs for crops and livestock brought forward, include on the expense side the estimates for labor to be hired, new machinery and repair, new fences and fence repair, building repair, taxes, farm insurance, and other overhead items. In some cases it may be advisable to include an estimate of sales from miscellaneous sources on the receipts side. The total expenses subtracted from the total receipts give the net returns. (See budget, pp. 2 and 3.)

Acres of crops, numbers of livestock provided in the plan for the coming year and in the long-time plan, expected receipts and expenses, and those actually obtained on your farm

Item	Last year	Long-time plan	Plan for coming year	Actual results, end of year
Crop:	*Acres*	*Acres*	*Acres*	*Acres*
Livestock:	*Numbers*	*Numbers*	*Numbers*	*Numbers*
Results:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Farm receipts				
Farm expenses				
Net returns				

At the beginning of the year, enter the acres of the different crops grown, the numbers of livestock kept, and the cash receipts and expenses for your farm for last year in one column as indicated above. Record the acres of crops and the numbers of livestock provided in the long-time plan for your farm, and enter the average receipts and expenses expected in the next column. In the third column, enter the acres of crops, the proposed numbers of livestock, and the receipts and expenses expected for the coming year. At the end of the year, enter in the last column the acres of crops actually grown, the numbers of livestock kept, and the receipts and expenses that actually resulted.

Forms to be used in making a farm budget as described in this bulletin may be obtained by writing the United States Department of Agriculture.

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U. S. DEPARTMENT OF AGRICULTURE

FARMERS' BULLETIN No. 1564 sl. rev.
Mar. 1933

Rev.ed.
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FARM BUDGETING

U. S. Department of Agriculture

THE UPS and downs in agricultural production are partly the result of changes made by farmers in acreages of crops and in numbers of livestock. Changes of this kind are necessary and unavoidable, but too often they are overdone in some lines and underdone in others. Decisions on these changes are often based upon the prices at or immediately before planting or breeding time and upon the crop yields and livestock production of the preceding season. The adaptation and application of the budget method, used in other business undertakings, is suggested as one way for farmers who act independently to meet the situation.

A farm budget is a carefully worked out plan based on estimates of how well a particular combination of crops or combination of crops and livestock will pay. These estimates are based upon the available information on what the prices and crop and livestock production are likely to be during the year or period of years just ahead.

In this bulletin the method of procedure in making a budget is first described. Next, the use of budgets in deciding upon the crops and livestock for the coming year and in keeping a profitable system of farming in mind is described. Finally, the needed information is given, some of the sources of this information are listed, and forms to be used in making a budget are shown.

Washington, D. C. Issued July, 1928; slightly revised March, 1933

FARM BUDGETING

By J. B. HUTSON, *Agricultural Economist, Division of Farm Management and Costs, Bureau of Agricultural Economics*

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WHAT IS A BUDGET?

A BUDGET is usually a plan for future using or spending. A farm budget is a plan for future use of land, man labor, horse work, equipment, and other resources. The budget has been used for many years by business farmers in this and other countries. It includes the plan for the system of farming for the coming year or period of years. It shows the crops to be grown, the livestock to be kept, and the estimated production, receipts, and expenses from the various sources. The budget is the businesslike way to work out and record farm plans. A budget for a 180-acre farm in western Kentucky is shown in Table 1.

HOW A FARM BUDGET IS MADE

A budget for the coming year is made on the basis of the prices, crops and livestock requirements, and production expected for the year. The method of procedure to be followed in making a budget will vary with the system of farming being considered. The budget should show, in the simplest way possible, the expected crop and livestock production, the expenses, and the receipts for the particular system contemplated. The budget in Table 1 is suggested for a diversified crop and livestock system of farming.

First, the acreages of the different crops contemplated and the crop expenses that appear probable should be recorded. (See section A of the budget on page 2.[1]) The next step is to estimate the production of the different crops and how much will be needed for seed, how much will be fed to livestock, and how much will be sold. (See section B.) Then the number and kind of livestock to be kept should be indicated. Next the feed requirements and other expenses for the livestock should be recorded. (See section C.) Often it will be ad-

[1] The budget shown here is for the year 1927 and was worked out in cooperation with the operator of the farm in March, 1927. Available data as to the prices that had prevailed in the area during the past few years were analyzed, and a careful study was made of conditions likely to influence prices during the years just ahead. The prices of products to be sold and expense items used in working out this budget are shown in Table 3, page 17. Farm-accounting work had been done in the area during the three previous years, and these data had been carefully analyzed. The results obtained on two subexperiment-station fields located in the same type-of-farming area and livestock experimental data applicable to conditions in the area were reviewed. The crop yields and requirements used in working out the budget are shown in Table 4, page 17. The livestock production and requirements used are shown in Table 5, page 18.

visable to divide this section into two parts, one showing how the feeds on hand at the beginning of the year are to be used and the other showing the feed crops to be consumed by the livestock from the harvest season to the end of the year.

TABLE 1.—*Budget for 180-acre farm in western Kentucky*

SECTION A—ACREAGE AND CASH EXPENSES FOR CROPS

Crops	Acreage	Seeds and plants		Other expenses		
		Quantity	Cost	Kind	Quantity	Cost
		Bushels	*Dollars*			*Dollars*
Corn	30	3				
Tobacco	8			Superphosphate (acid phosphate).	2,400 pounds	26.40
				Canvas	80 yards	4.00
				Arsenate of lead	40 pounds	10.00
Wheat	20	25		Superphosphate (acid phosphate).	4,000 pounds	44.00
				Twine	40 pounds	4.80
				Threshing	280 bushels	33.60
Soy-bean hay	5	3¾				
Soy-bean seed	5	3¾				
Mixed hay	30	(1)	96.30			
Total			96.30			122.80

SECTION B—PRODUCTION AND DISPOSAL OF CROPS

Crops	Production (quantity)	Disposal			
		Feed (quantity)	Seed (quantity)	Sales	
				Quantity	Value
					Dollars
Corn ..... bushels	840	793	3	44	30.80
Tobacco ..... pounds	8,000			8,000	720.00
Wheat ..... bushels	280		25	255	344.25
Soy-bean hay ..... tons	6¼	6		¼	4.00
Soy-bean seed ..... bushels	75		7½	67½	135.00
Mixed hay ..... tons	30	18		12	192.00
Total					1,426.05

SECTION C—FEEDS AND OTHER EXPENSES FOR LIVESTOCK

Livestock	Number	Home-grown feeds		Purchased feeds			Other expenses	
		Kind	Quantity	Kind	Quantity	Cost	Kind	Cost
					Pounds	*Dollars*		*Dollars*
Cows	6	Corn	84 bushels	Bran	1,500	26.25	Breeding fees	15.00
		Soy-bean hay.	6 tons	Cottonseed meal.	1,500	28.50	Miscellaneous	6.00
		Mixed hay	do					
Young heifers	4	do	2 tons					
Veal calves	3	Whole milk	1,500 pounds					
Sows with pigs	3	Corn	384 bushels	Tankage	1,500	52.50	Breeding fees	10.00
							Miscellaneous	2.00
Poultry	100	do	100 bushels	Meat scraps	500	20.00	do	2.00
		Skim milk	1,032 pounds[2]	Oyster shells	500	6.25		
Work horses	5	Corn	225 bushels				Shoeing	15.00
		Mixed hay	10 tons				Miscellaneous	5.00
Total		Corn	793 bushels					
		Mixed hay	18 tons			133.50		55.00

[1] Includes 150 pounds red-clover seed at 27 cents; 150 pounds orchard-grass seed at 14 cents; 90 pounds alsike-clover seed at 22 cents; and 60 pounds redtop seed at 25 cents.

[2] Taken from whole milk used in the home.

TABLE 1.—*Budget for 180-acre farm in western Kentucky*—Continued

SECTION D—PRODUCTION AND DISPOSAL OF LIVESTOCK AND LIVESTOCK PRODUCTS

Livestock and products	Production (quantity)	Disposal			
		Fed to livestock (quantity)	Used in home (quantity)	Sales	
				Quantity	Value
					Dollars
Whole milk ..... pounds	30,000	1,500	3,500	25,000	535.50
Veal ..... do	480			480	38.40
Pork ..... do	4,800		800	4,000	340.00
Old hens ..... do	200			200	36.00
Young poultry ..... do	150		100	50	11.00
Eggs ..... dozen	900		[3] 170	730	146.00
Total					1,106.90

SECTION E—SUMMARY OF RECEIPTS AND EXPENSES

Receipts	Total value	Expenses	Total value
	Dollars		*Dollars*
Crops (sec. B)	1,426.05	Crops (sec. A):	
Livestock and livestock products (sec. D)	1,106.90	Seed	96.30
		Other crop expenses	122.80
		Livestock (sec. C):	
		Feed purchased	133.50
		Other livestock expenses	55.00
		Other expenses (estimated):	
		Hired labor (threshing)	25.00
		Machinery (new and upkeep)	60.00
		Fence (new and upkeep)	30.00
		Buildings (repair)	100.00
		Taxes, insurance, and other overhead	125.00
Total	2,532.95	Total	747.60
Net returns	1,785.35		

[3] Includes 20 dozen eggs used for hatching.

At this point it will usually be advisable to compare the data showing the feeds on hand at the beginning of the year and crops to be grown for feed, with data showing the expected feed requirements. Generally, before a cropping program and livestock program are finally decided upon, adjustments will need to be made in first one and then the other until a livestock program adapted to a particular cropping program is found. When the kind and numbers of livestock contemplated have been recorded, the quantities of the livestock and livestock products expected to be used in the home and to be sold should be indicated. (See section D.)

The expected value of the crop and livestock products to be sold and the expected cost of the purchased feeds, seeds, fertilizers, and other materials should then be indicated. (See cost and value columns of sections A, B, C, and D.) Next, these expected expenses and receipts should be brought together. (See section E.) In addition to the direct costs for crops and livestock, estimates should be included on the expense side for labor, new machinery and repair, new fences and fence repair, building repair, taxes, farm insurance, and other overhead items.

WHY A FARM BUDGET?

The purpose of working out farm budgets is to aid in determining in advance the returns that may reasonably be expected from the different systems of farming that may be followed, or the results that may reasonably be expected if changes are made in a particular one. Generally larger profits will result if plans for the system including probable expenses and receipts are carefully developed and compared with plans for other possible systems before the one chosen is actually put into operation. In this way many costly errors may be avoided. Specifically, the use of farm budgets carefully worked out has the following advantages:

Budgets help farmers more accurately to appraise different systems and practices so that the most profitable systems and practices may be decided upon. They offer a definite basis for comparisons between systems made up of different combinations of crop and livestock.

Budgets help to keep a good balance between crops in a crop system of farming and a good balance between crops and livestock in a crop and livestock system.

Budgets help to determine in advance how much seed, fertilizer, and other supplies are likely to be needed during the year.

Budgets help to determine how much feed will be needed for the livestock, how much will need to be bought, and how much is likely to be available for sale.

Budgets help in determining the amount of cash that will be needed to operate the farm, and when it will be needed, so that the necessary financial arrangements may be made.

Budgets help in determining the total net returns that may be expected so that living expenses, payments, or investments may be adjusted accordingly.

Stated more generally, budgets are advised because conditions affecting farm returns are continually changing. These changes are reflected in prices, crop yields, livestock production, and crop and livestock requirements.

Two kinds of price changes are of particular significance to farmers. First, there are price trends or long-time upward or downward movements of prices. These long-time upward or downward movements are usually different for different products. For example, in South Dakota for the five-year period 1921 to 1925, corn increased in price over the five-year period from 1911 to 1915, 8 per cent, wheat increased 20 per cent, potatoes 18 per cent, hogs 18 per cent, and beef cattle 5 per cent, whereas the price of barley decreased 20 per cent and that of oats decreased 14 per cent. In western Kentucky the price of dark tobacco, the principal product of the section, has been little, if any, higher during recent years than during pre-war years, whereas the prices of most other farm products of the section have been considerably higher during recent than during pre-war years. Similar price changes are continually taking place in most farming sections both for products sold and for expense items.

Other price changes of interest to farmers are price cycles. The prices of many farm products tend to move upward for a period of years and then downward for a more or less similar length of time. For example, hog prices usually tend upward from one and one-half to two and one-half years and then downward for about the same length of time. For most other species of livestock the upward and downward movements are for longer periods. There appears to be a tendency for beef-cattle prices to go up from six to nine years and

then down for a somewhat similar length of time. In the case of horses the upward and downward price movements tend to extend over periods of 10 to 15 years. The most important factor in determining the length of these upward and downward movements is the length of time required to expand or contract materially any enterprise after unusually high or unusually low prices are reached.

Price trends and cycles are due to developments that are world-wide in scope. Changes in the habits and tastes of people, in channels of trade, and in transportation costs and the opening up of new production areas all play their part in causing price trends. The adjustments in production plans that farmers make in response to prices are largely the cause of price cycles.

In addition to price trends and cycles the amounts of crops and livestock held over from one year to the next vary and have an influence on the prices of the following year. The amounts of different products that will be taken at given prices vary with industrial activity and related factors. As a result of these and other factors, farmers are continually facing new price situations.

On the production side new practices are developed for cultivating and harvesting crops and for feeding livestock, and these new practices result in different man labor, horse work, feed, and other requirements. The wheat binder, the corn binder, the tractor, the small combine, each has had or is having its influence on the amounts of labor needed in growing particular crops and on the net returns obtained. Crop yields are continually being affected by insect and crop pests. For example, the boll weevil has been responsible for a reduced yield of cotton and has made it desirable to consider changes on most farms in the Cotton Belt. Now the corn borer promises a similar problem for the Corn-Belt farmer. Livestock are not without their diseases and parasites.

Many of these changes are more or less permanent in nature and may be known. Other developments may be anticipated with some degree of accuracy. Obviously such things make changes advisable in the crops to be grown and the livestock to be kept on a particular farm. The crops and livestock that will result in the largest returns at one time will not always give good results at some later time.

In their efforts to cope with these changed or new situations farmers are continually making adjustments in crops, livestock, and practices. Usually these adjustments are the result of comparisons of the returns expected from different systems and practices. Some of these comparisons are simple and easily made and some are complex and involved. Some of them are crudely and imperfectly made and others are carefully worked out.

These comparisons are often based upon facts taken from memory, and are made without the use of pencil or paper. Sound conclusions may be reached in this way in the case of simple comparisons, but most problems in present-day agriculture are too involved to make this method advisable. In highly commercialized farming, usually, a change in one enterprise makes changes desirable in several other enterprises. Then there is the ever-present tendency to give too much weight to the prices, the yields, and the production that result from conditions more or less temporary in nature, and this tendency is likely to be more pronounced when the memory alone is depended

upon. Generally, safer conclusions will be reached and larger profits will result from the farming operations if the facts considered are carefully organized and if judgments are completely formed and recorded and if the comparisons between enterprises and systems are carefully worked out. This involves the use of farm budgets.

WHEN TO MAKE FARM BUDGETS

December, January, and February are the budget-making months in most parts of the country, and in some sections March is used. These are the months when a farmer usually has the most time to do uninterrupted thinking. When the crops are harvested a farmer can usually find time to take stock, review the successes and failures of the past season, compare the results actually obtained with those expected at the beginning of the year, and make a budget for the coming year.

HOW TO USE THE BUDGET METHOD IN MAKING FARM PLANS

As suggested above, an important use of farm budgets is in reaching conclusions as to crops and livestock that are likely to prove most profitable under given conditions. In this connection it should be kept in mind that farming is a forward-looking undertaking and that plans should be made on the basis of conditions expected in the future. One should be as familiar as possible with the results of the past. However, the results of the past should be interpreted in the light of conditions expected in the future. This is what is attempted in making farm budgets.

One use of farm budgets is in finding the crops and livestock—the acres of each crop and the number of each kind of livestock—that will probably result in the largest returns during the coming year. Another use is in finding the crops and livestock that will probably result in the largest returns over a period of years. The former is usually considered the plan for the coming year and the latter the long-time plan or the system of farming.

MAKING PLANS FOR THE COMING YEAR

The kinds of crops and livestock should usually remain the same for a period of years, but it is seldom possible or advisable to plan to grow the same acreage of each crop or keep the same number of each class of livestock each year. If nothing else, variations in the number of livestock born, and crop failures of the previous year, will make this impossible in some cases and inadvisable in others. Then there are lines of production, like dairying or handling a breeding herd of beef cattle, that a farmer must grow into; they can not well be developed in a year. Furthermore, if a farmer makes a study of the conditions that influence prices he will usually be able to form more accurate judgments as to prices expected during the coming year for at least some of the products than those of the past year or even the average for a period of years. It follows that the plans for each year should be different, in at least some respects, from the plans for any other year.

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A farmer who has definitely in mind a long-time plan should make a budget showing the returns expected and the prices that appear most likely to prevail during the coming year. If he has no long-time plan definitely in mind, perhaps the best starting place is with the crops and livestock of the previous year. In either case the next step is to make comparisons as to the changes in returns that appear probable if increases are made in the acreage of crops and the numbers of livestock for which relatively high prices are expected and decreases in those lines in which relatively low prices are expected.

Many possible alternatives may be eliminated or tentatively decided upon by these simple comparisons. For example, a farmer who is accustomed to growing wheat along with other crops may be considering whether it will be advisable to substitute barley for a part of the wheat. Suppose the cropping program calls for 60 acres of spring wheat, and the farmer is trying to decide whether to substitute barley for 20 acres of the wheat. Granting that the substitutions could be made without affecting other enterprises, he would need only to consider the costs, prices, and yields of these two crops. A method of working out a comparison of this kind follows:

Probable income from wheat:		
255 bushels (20 acres at 14 bushels less 25 bushels seed) at $1.35		$344.25
Threshing 280 bushels at 12 cents	$33.60	
Twine, 40 pounds at 12 cents	4.80	
Fertilizer, 2 tons at $22	44.00	
Total, threshing, twine, and fertilizer		82.40
Net income from wheat		261.85
Probable income from barley:		
445 bushels (20 acres at 24 bushels less 35 bushels seed) at 75 cents		333.75
Threshing 480 bushels at 10 cents	$48.00	
Twine, 45 pounds at 12 cents	5.40	
Fertilizer, 2 tons at $22	44.00	
Total, threshing, twine and fertilizer		97.40
Net income from barley		236.35
Probable excess in favor of wheat		25.50

It will sometimes be advisable to attempt simple comparisons of this kind where three or more enterprises are involved. Usually, however, when changes are being considered that affect more than two enterprises and often when changes for only one or two are contemplated, the problem is too complex for such simple comparisons. Sometimes it may be advisable to consider the substitution of a crop that has different man-labor and horse-work needs or that requires attention at a different time of the year from the crop to be displaced. Such substitutions usually mean either more thorough or less thorough cultivation of other crops. Often changes may be considered that will mean more or less home-grown feed or a different ration for the livestock. In the case of involved changes of these kinds other complete budgets are recommended.

It will sometimes be advisable to work out several trial budgets each indicating the farmer's judgment as to the returns that may reasonably be expected during the coming year from different combinations

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of crops and livestock. Each of these budgets should carry data similar to those suggested in Table 1, pages 2 and 3.

It is important that each of these budgets be worked out on a similar basis. That is, a farmer should not use the prices, yields, and other production relations of the past years for one budget and then use those expected in the future for other budgets. Since systems of farming are planned for the future, the prices and production relations used should be those that are expected in the future. In some cases it may be advisable to take the feeding requirements and livestock production of the past year and work out a financial statement, using normal crop yields and expected prices. Whenever experience or available data warrant, however, it will be advisable to adjust the livestock data, as well as the yields, to a normal basis.

The budgets worked out in this way should then be compared. After taking into account the amount of risk involved under each, the changes each necessitates in livestock on the farm at the time, the changes from the crops of the past season, and the probable effect of each change on the returns of the following years, one of these budgets should be decided upon as the plan for the coming year. Budgets of this kind should be made at the beginning of each year.

BUDGETS WITH VARYING PRICES AND YIELDS

Even after a plan for the coming year has been carefully worked out, adjustments in this plan may be advisable during the year. Less favorable production may be obtained along some lines than were anticipated, and more favorable production may be obtained along other lines. Higher prices may be obtained for some products than were anticipated and lower prices for others.

In cases in which the prices contemplated for the crops and livestock vary widely from year to year, or in which the information to be used as a basis for judgments as to prices, is meager, it may be advisable to work out different budgets for the crops and livestock decided upon for the year, and to use different prices, each being based upon a particular set of prices within the range of probability. That is, the expenses, receipts, and net returns that will probably result from a given combination of crops and livestock with different prices may be worked out.

In areas in which the yields of crops vary widely from year to year it may be advisable to work out different budgets for the same system, using the different yields which are within the range of probability.

Such budgets, worked out with varying prices and yields, will help a farmer to determine maximum and minimum expectations from his crops and livestock, and to anticipate possible adjustments that may be necessary during the year. For example, crop yields below normal may make it advisable to sell livestock with less finish or at lighter weights, or may make it advisable to reduce the number of one kind of livestock and increase the number of another. Or it may be well to make changes in the feeding plans during the year.

Prices and production can not be forecast with enough accuracy to make it unnecessary to be on the lookout for possible improvements through adjustments of this kind. The more carefully a farmer has

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thought through these problems in advance the better prepared he will be to meet such conditions as they arise.

PLANNING A SYSTEM OF FARMING

Often prices or conditions on the farm may so change as to make it advisable to reorganize the farm completely and introduce a new system of farming or a system markedly different from the one that has been followed. For example, a farmer may be engaged in dairying; that is, in growing feed crops and selling dairy products, and conditions may be such as to make it advisable to consider feeding beef cattle and hogs. Or a farmer may be engaged in growing cotton along with a small amount of feed for the work stock, and conditions may be such as to make it advisable to consider dairying or some other kind of livestock farming.

In trying to decide whether a marked change of this kind will be advisable in the system of farming that is being followed, a farmer should first look about in his own community, and in other communities that have similar conditions, and consider the results that other farmers are getting from other crops and livestock. A system that has given good results on one farm may not give good results on another farm even in the same community, since no two farms are exactly alike, and may not give good results on the same farm under different conditions, but this general appraisal of other systems is a good preliminary move. From it a farmer should get a general idea of other crops, livestock, and systems that are adapted to his conditions.

It is at this point that the budget plan may again be used to advantage. The use of carefully worked-out budgets is the most accurate way to compare the various systems that may be considered. While the budgets to be used in this connection should be made on the yearly basis, they should be based upon average yields and production requirements and upon the average prices expected during the period of years just ahead. They should show the average of the acres of crops and the numbers of livestock, the estimated production, expenses, and receipts for the period. The period considered should be at least as long as the rotation contemplated. If special buildings or machinery are needed, which is often the case, a 5-year or 10-year period or even a longer period should be considered.

It will be advisable to study available information and to formulate judgments as to prices, crop yields, livestock production, and crop and livestock requirements, as described above, for such crops and livestock as appear to have possibilities on the farm that is being considered. Next, a budget similar to that suggested on pages 2 and 3 should be prepared for the present system. Following this, the farmer should consider desirable combinations of crops and livestock for other systems and work out budgets for them.

In deciding upon the acreage of the different crops and the numbers of the different classes of livestock to include in the systems that are being considered, the seasonal as well as the total man labor and horse-work needs of each crop and class of livestock should be kept in mind. It is generally advisable to consider only such combinations of crops and livestock as can be taken care of

by the men and teams that are likely to be available. If systems are to be compared with markedly different man labor and horse-work requirements, the cost of providing the added labor must be considered.

The budgets worked out in this way should be compared. In comparing the budgets of the different systems, each should be considered critically for the purpose of determining how well the principal crops are adapted to the area, the effect of each system upon the fertility of the soil, the kinds of markets that are available for each of the products to be sold, how nearly the feed crops provide a balanced ration for the livestock if the system includes livestock, how well the crops and livestock fit together, and how well the nonmarketable products, such as pasture, straw, stover, and skim milk are utilized with each. With these facts, and the returns that may reasonably be expected from each in mind, one of the systems should be selected as the system to be followed. Presumably this will be the system that, other things being equal, promises the largest returns on the basis of normal yields and production requirements and prices expected for a period of years.

It is not usually necessary to make comparisons of this kind, involving other systems of farming, each year. After a system has been decided upon it should be followed until conditions of the period or on the farm have undergone a marked change. A farmer should continually be on the alert, however, for new developments and should consider carefully the possibilities of other systems whenever conditions warrant.

KEEPING ACCOUNTS AGAINST THE BUDGET

After a budget has been made an inventory should be taken, the expenses and receipts should be kept during the year, and at the end of the year the returns actually obtained should be compared with those contemplated in the budget. If a budget has been made for a period of years it may also be included in the comparisons. A method of recording data for these comparisons is shown in Table 2.

Accounts provide material that is essential to a thorough-going analysis of the farm business as it has been operated in the past. They are valuable in helping to locate the strong and weak points of the system being followed. They aid in locating the leaks in the profits. For example, the crop yields and requirements of that year may be compared with those contemplated in the budget and with those obtained by other farmers. The returns for the feed consumed by the livestock may be compared with the returns contemplated in the budget and those obtained by other farmers. Accounts provide a basis for determining how the labor, building, machinery costs, and other expenses compare with those contemplated in the budget and those prevailing on other farms. Attention to such points makes economical production possible.[2]

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[2] For more complete discussion of farm accounts, see the following bulletins:
LADD, C. E. A SYSTEM OF FARM COST ACCOUNTING. U. S. Dept. Agr. Farmers' Bul. 572, 15 p. 1914.
THOMSON, E. H. FARM BOOKKEEPING. U. S. Dept. Agr. Farmers' Bul. 511, 37 p., illus. 1912.
For method of analyzing farm business see: DIXON, H. M., and HAWTHORNE, H. W. A METHOD OF ANALYZING THE FARM BUSINESS. U. S. Dept. Agr. Farmers' Bul. 1139, 40 p., illus. 1920.

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TABLE 2.—*Comparison of acres of crops, numbers of livestock contemplated, and expected receipts and expenses for long-time plan, and plan for coming year, with results actually obtained, 180-acre farm* [1]

Item	Last year	Long-time plan	Plan for coming year	Actual results, end of year
Crop:	*Acres*	*Acres*	*Acres*	*Acres*
Corn	30	30	30	
Tobacco	11	10	8	
Wheat	7	10	20	
Soy-bean hay	7	10	5	
Soy-bean seed			5	
Mixed hay	50	30	30	
Pasture	46	51	46	
Livestock:	*Number*	*Number*	*Number*	*Number*
Work stock	5	5	5	
Cows	2	10	6	
Young cattle	2	5	4	
Sows	1	3	3	
Other hogs	5	24	24	
Chickens	45	100	100	
Results:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Farm receipts	1,840	2,886	2,533	
Farm expenses	689	864	748	
Net returns	1,151	2,072	1,785	

[1] The operator of the farm whose returns last year and whose budgets for a period of years and for the coming year as shown above has been depending upon crops as sources of income. He plans in the future to combine some cash crops and dairying. One reason that the plan for the coming year differs from the long-time plan is that the operator considers it advisable to buy only 4 cows during the coming year and grow into dairying.

Accounts, if accurately kept and intelligently interpreted, may become the best source of information in helping to determine the production that may reasonably be expected to result from a particular practice, enterprise, or system of farming. In making farm budgets an opportunity is offered to use these accounting data in connection with experimental data and information on prices in planning future operations. Accounts help a farmer to localize and interpret experimental results in terms of conditions on the farm. This will be discussed further in a later section. Most State colleges of agriculture have account books suitable for recording inventories, expenses, and receipts which they furnish at a small cost. Such books can usually be obtained from the county agent or by writing to the State college of agriculture.

INFORMATION NEEDED IN MAKING A BUDGET

The returns actually obtained in farming probably will not approximate the returns contemplated in a budget unless the prices, requirements, and yields used in making the budget approximate those that actually prevail. Those used in making the budget should represent the best judgment of the one doing the planning, as to the production and prices that may reasonably be expected for the particular farm and period, after considering all the information available. The information available that will be useful may be divided into two classes—that relating to prices and that relating to production.

PRICE INFORMATION TO BE USED

In order to plan for the coming year and at the same time to keep a permanent and profitable system of farming in mind, judgments

must be formed as to prices expected for the coming year and for the period of years just ahead.

Average prices, price trends, and long-time demand changes must be known to form judgments as to prices for a period of years. In the case of prices for the coming year, in addition to the above, the facts as to supplies on hand, production in competing areas and countries, and demand changes likely to come about during the year are important. Such information is to be found in market-news reports, agricultural-situation reviews, and in agricultural-outlook statements issued by State and Federal agencies.

SOURCES OF PRICE INFORMATION

The following are the principal sources of information on prices:

Market reports as issued by the Federal market news service and distributed by mail, radio, and through the farm newspapers.

Crops and Markets, the monthly periodical issued by the United States Department of Agriculture.

Special commodity price studies issued by the United States Department of Agriculture and many of the States.

The Agricultural Situation, a monthly publication issued by the United States Department of Agriculture and similar reports issued by several of the State colleges of agriculture and extension services.

Yearbooks of the United States Department of Agriculture; yearbooks of State departments of agriculture and State agricultural statisticians.

Annual agricultural-outlook reports, issued by the United States Department of Agriculture, and outlook reports issued by State colleges of agriculture and extension services in many States.

Statistical bulletins issued by the United States Department of Agriculture.

MARKET NEWS REPORTS

The United States Department of Agriculture market news service and State departments of agriculture review the market situation for the principal farm commodities weekly and monthly during the year. These reviews are distributed by mail, by radio, and in weekly and farm papers. The prices on future-trading markets indicate the judgment of dealers and speculators as to the trends in prices during the months just ahead.

CROPS AND MARKETS

Crops and Markets is the monthly publication of the United States Department of Agriculture which carries the principal statistics on crop and livestock production, movements, prices, stocks, and foreign trade on all products covered by the department's work. It carries information as to the acres of crops planted and harvested, the condition of these crops during the year, estimates of the number of livestock on farms, the amounts of different products marketed and on hand, and other related information on crop and livestock production and prices. Copies of Crops and Markets may be seen in the office of the county agent. The subscription price is 60 cents a year.[3]

SPECIAL COMMODITY PRICE STUDIES

In recent years the United States Department of Agriculture and some of the State colleges of agriculture have undertaken careful

[3] Payable in cash or money order to the Superintendent of Documents, Government Printing Office, Washington, D. C.

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studies of the factors affecting the prices of specific farm commodities and thorough-going analyses of conditions confronting producers of certain commodities. Among the available bulletins that discuss factors affecting prices of specific commodities are the following: Department Bulletin 1440, Factors Affecting the Price of Hogs; Department Bulletin 1351, What Makes the Price of Oats?; Department Circular 416, Demand, Marketing, and Production of Oregon and Washington Prunes. A letter to the State college or extension service may bring you State bulletins relating to local studies.

THE AGRICULTURAL SITUATION

The Agricultural Situation is a summary of national farm conditions issued monthly by the United States Department of Agriculture. It carries a general summary of conditions throughout the country, and from time to time it prints special reports for particular sections or commodities. It also carries data showing price trends during the past few years. This publication may be obtained from the United States Department of Agriculture; the present subscription price is 25 cents per year. It is sent to all county agricultural agents. Many of the State colleges of agriculture issue similar reports, which may be obtained from the county agent or by writing to the State college of agriculture.

YEARBOOKS

Each year the United States Department of Agriculture publishes the Yearbook which carries, among other things, a large amount of statistical information on prices. Each Congressman and Senator send out a number of these Yearbooks free. Other copies may be obtained from the Superintendent of Documents, Washington, D. C., at $1.50 per copy.

Most of the State departments of agriculture issue yearbooks which carry much of the information for the particular State carried in the Yearbooks of the United States Department of Agriculture and usually some additional information.

ANNUAL AGRICULTURAL OUTLOOK REPORTS

Each year, usually in January, the Bureau of Agricultural Economics of the Department of Agriculture, and many State colleges of agriculture, issue outlook reports discussing probable price trends of principal farm commodities during the coming year. Mid-year outlook reports on leading livestock enterprises are issued in late summer and early fall. When farmers' intention-to-plant reports on the principal crops are issued in the spring, additional outlook statements may accompany them. Outlook reports for crops planted at other times than in the spring are issued at other times. Reports on farmers' hog-breeding intentions are issued in June and in December. Similar reports for other livestock are issued from time to time. The Monthly Price Situation, issued about the 15th of each month, gives the condition of prices for leading agricultural products and factors that may soon influence these prices. These reports may be seen in the office of the county agent or may be obtained by writing to State colleges of agriculture or to the United States Department of Agriculture.

STATISTICAL BULLETINS

The United States Department of Agriculture is issuing a series of statistical bulletins which give all pertinent statistics for the chief agricultural commodities. The series includes a group of four price bulletins, which tabulate the prices paid to producers for the chief farm products over a series of years.

Of the sources of price information mentioned, the outlook reports and the Agricultural Situation carry conclusions as to probable price trends during the months just ahead. Crops and Markets and intentions-to-plant reports carry information such as is considered in arriving at the conclusions indicated in these reports. Bulletins based upon special price studies usually carry conclusions for a somewhat longer period. The other sources mentioned carry data that are useful in making an analysis of the price situation of the principal farm commodities.

In reaching conclusions as to prices care should be exercised lest too much weight be given to those of the present or of the immediate past. It should be remembered that the prices of farm products fluctuate widely from year to year and that the changes are seldom uniform. Research studies made by the United States Department of Agriculture and the State colleges of agriculture show price cycles or fairly definite price trends or both for many farm products. For these reasons, as much time as possible should be given to the study of average prices, price trends, and market-outlook information and to the consideration of studies made by others before the prices to be used in making the budget are decided upon.

PRODUCTION INFORMATION TO BE USED

Generally normal or average crop and livestock requirements, yields, and production should be used in making a budget. The yields for crops and the production for livestock vary from year to year, but the variations depend largely upon such factors as temperature, rainfall, insect pests, and livestock diseases, which can not be anticipated with any degree of accuracy. The best the farmer can do is to review his own experience and such records as are available for his farm, study records and accounts showing the results on other farms, and data showing the results of experiments in growing crops and feeding livestock; then consider all of these facts in the light of conditions on his own farm, and make the best approximations possible.

In the case of crops, an effort should be made to find out the yields that may reasonably be expected from different quantities of seed and fertilizer and the quantities of these and other materials that will probably result in the largest returns, in the light of conditions on the farm and of prices that may reasonably be expected. In the case of livestock, an effort should be made to determine the production that may reasonably be expected to result from different rations and the particular ration that will result in the largest returns, considering the home-grown feeds and pasturage available and the prices expected for feeds, livestock, and livestock products.

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SOURCES OF PRODUCTION INFORMATION

Among the important sources of information on production are the following:

Records for the farm and similar records in the community.
Records showing county and State crop yields.
Books, bulletins, and reports showing the results of livestock feeding and crop experiments of the United States Department of Agriculture and State colleges of agriculture.
Demonstrations showing the results of practices in the community.

RECORDS FOR FARM AND COMMUNITY

Records showing the results that have been obtained on one's own farm from different fertilizer and cultivation practices for crops and feeding practices for livestock are extremely useful in forming judgments as to crop and livestock production that may reasonably be expected in the future. Similar records for other farms in the community or with similar conditions are also useful.

During the past few years thousands of farmers in different parts of the United States have kept records of farming operations in cooperation with the State colleges of agriculture and the United States Department of Agriculture. These records are usually summarized and analyzed by State and Federal agencies and the results are made available in bulletins and reports. Such reports may be obtained from the county agent or by writing to the State college of agriculture or the United States Department of Agriculture.

COUNTY AND STATE YIELDS

The Yearbooks of the United States Department of Agriculture carry data that show State crop yields for the principal crops for several years. The yearbooks of the State departments of agriculture carry data that show county crop yields for a period of years. Such data indicate in a general way trends in yields and the variations that are probable for a particular year.

EXPERIMENTAL RESULTS

Ever since its establishment in 1862, the United States Department of Agriculture has been conducting experiments in growing crops and in feeding livestock. Since the passage of the Hatch Act in 1887, and in some cases before, experimental work of a similar kind has been done by the State agricultural experiment stations. More recently, branch experiment stations and experiment fields have been established by most of the States, and now experimental results are available on crop and livestock production which are applicable to most sections of the country. These experiments show the results of feeding different rations to livestock and of different practices in growing crops. These results are published from time to time in bulletins and special reports, which may be obtained from the county agent or by writing to the State colleges of agriculture or to the United States Department of Agriculture. Books are also published from time to time discussing the results of experimental work.

DEMONSTRATIONS IN COMMUNITY

In most parts of the country, in cooperation with the county agents, farmers conduct demonstrations to show the possibilities of practices or lines of production other than those commonly followed in the community. Such demonstrations are very valuable if new practices or new lines of production are contemplated. The careful consideration of practices and systems worked out by successful farmers is also helpful.

Of the sources mentioned, the publications which carry results of experiments are likely to be most useful in determining the yields that will probably result from the use of different fertilizers or other practices, and the livestock production that will probably result from different rations. One's own experience and records showing the results on other farms will be useful in localizing and interpreting the experimental data in terms of conditions on the farm and in determining the crop and livestock production that will probably result from the practices commonly followed in the community.

A careful study of production information, such as that described above, will provide a basis for conclusions as to the crop yields that are most likely to be obtained, the quantities of the different kinds of feeds normally required to produce 100 pounds of pork or to put 100 pounds of gain on steers, or to keep a cow or a horse a year. A similar study of the information mentioned and such other information as may be available on prices will provide a basis for conclusions as to the prices that are most likely to prevail during the coming year and during a longer period. A method of recording conclusions of this kind is shown in Tables 3, 4, and 5, pages 17 and 18.

The analysis of these data and the formulation of judgments as to production and price relations that appear probable at a particular time constitute one of the preliminary yet essential steps in the budget-making process. Such an analysis provides a basis for adjusting the practices and enterprises to the economic conditions of the time.

FORMS FOR FARM-BUDGET MAKING

In the following pages a set of sample forms is shown. These forms illustrate a method of organizing facts that should be considered and the kinds of forms needed to work out a farm budget. The facts may be organized and a farm budget made by observing the following procedure:

First, list the products that appear to have possibilities as sources of income, as indicated by the products-to-be-sold column, Table 3. Next list the different kinds of feed, seed, fertilizer, and other items that are to be used in getting these products, as indicated by the expense-items column alongside. Next, examine the data on average prices, price trends, and the market outlook for each of these marketable products, and examine the expense items. When as much time as practicable has been given to the study of the price situation, enter the prices that appear probable for the items that must be bought and for the products to be sold. Entries should show the prices expected during the coming year and the average prices expected for a period of years.

XUM

TABLE 3.—*Prices for products to be sold and expense items*

Products to be sold			Expense items		
Item	Expected average prices, next 5 years	Expected prices coming year [1]	Item	Expected average prices, next 5 years	Expected prices coming year [1]
Cash crops:	*Dollars*	*Dollars*	Feeds:	*Dollars*	*Dollars*
Wheat.....per bushel..	1.25	1.35	Bran per hundred weight..	1.75	1.75
Tobacco.....per pound..	.11	.09	Cottonseed meal....do....	2.10	1.90
Soy beans....per bushel..	2.00	2.00	Tankage.....do....	3.50	3.50
Corn.....do....	.70	.70	Meat scraps.....do....	4.00	4.00
Mixed hay.....per ton..	16.00	16.00	Oyster shells.....do....	1.25	1.25
Livestock:			Fertilizer:		
Whole milk ...per hundred weight..	2.10	2.10	Acid phosphate..per ton..	22.00	22.00
Veal.....per pound..	.08	.08	Seeds:		
Hogs per hundred weight..	8.50	8.50	Red clover....per pound..	.27	.27
Old hens.....per pound..	.18	.18	Orchard grass.....do....	.14	.14
Young poultry.....do....	.22	.22	Alsike clover.....do....	.22	.22
Eggs.....per dozen..	.22	.20	Redtop.....do....	.25	.25
			Miscellaneous:		
			Canvas.....per yard..	.05	.05
			Arsenate of lead ...per pound..	.25	.25
			Twine.....do....	.12	.12
			Threshing wheat ...per bushel..	.12	.12

[1] The prices in the "coming year" columns were used in making out the budget shown on pp. 2 and 3.

TABLE 4.—*Normal yields and production requirements for crops—per acre basis* [1]

Crops	Seed	Fertilizer and other materials		Yield
		Kind	Quantity	
Tobacco		Superphosphate (acid phosphate).	300 pounds	1,000 pounds.
		Arsenate of lead	5 pounds	
		Canvas	10 yards	
Corn	½ bushel			28 bushels.
Wheat	1¼ bushels	Superphosphate	200 pounds	14 bushels.
		Twine	2 pounds	
		Threshing	12 cents per bushel.	
Soy-bean hay	¾ bushel			1¼ tons.
Soy-bean seed	do			15 bushels.
Mixed hay	Red clover, 5 pounds; orchard grass, 5 pounds; alsike clover, 3 pounds; redtop, 2 pounds.			1 ton.

[1] The yields and production requirements shown here were used in working out the budget shown on pp. 2 and 3.

List the crops that are being considered for the farm as indicated by Table 4. Next enter the yields and the seed, fertilizer, and other material requirements necessary to get these yields. The yields should represent one's best judgment as to normal expectations from the requirements shown and practices contemplated. Often it will be advisable to record 2 or more yields for a particular crop, each representing the production expected from a particular quantity of fertilizer, seed, or practice.

TABLE 5.—*Normal feeding requirements and production for livestock*[1]

Livestock	Home-grown feeds		Purchased feeds		Production	
	Kind	Quantity	Kind	Quantity	Kind	Quantity
Dairy cows, per head.	Corn	14 bushels	Bran	250 pounds	Whole milk	5,000 pounds.
	Soy-bean hay.	1 ton	Cottonseed meal.	do	Veal [2]	80 pounds.
	Mixed hay	do				
Heifers, per head.	do	½ ton				
Veal calves	Whole milk	500 pounds				
Hogs, 1 sow, 8 pigs.[3]	Corn	128 bushels	Tankage	500 pounds	Live weight.	1,600 pounds.
Poultry (per 100 hens).	do	100 bushels	Oyster shells	do	Old hens	200 pounds.
	Skim milk	1,032 pounds.	Meat scraps.	do	Young poultry.	150 pounds.
					Eggs	900 dozens.
Work horses, per head.	Corn	45 bushels				
	Mixed hay	2 tons				

[1] The feed and other requirements and production shown here were used in working out the budget shown on pp. 2 and 3.

[2] The veal production shown is based upon the assumption that 1 veal calf weighing 160 pounds would be sold for each cow every other year.

[3] The requirements shown are based upon 8 bushels of corn and 31 pounds tankage per 100 pounds of gain.

List the different classes of livestock being considered as shown in Table 5. Next enter the normal yearly feed and other requirements and production for each class of livestock. Often it may be advisable to record varying amounts of feed for a particular class of livestock and the production that will normally result from such feed, the feed requirements being based upon different rations.

Tables 3, 4, and 5, when carefully filled out, provide basic data to be used in working out budgets for the different systems considered.

FORMS FOR THE FARM BUDGET

Section A: Acreage and cash expenses for crops

Crops	Acreage	Seeds and plants		Other expenses		
		Quantity	Cost	Kind	Quantity	Cost
Total						

When a cropping program has been tentatively decided upon, list the kinds of crops and acreage of each as indicated by Section A. Data for the remainder of the form may be obtained by multiplying the figures in the acre column by the production-requirement data recorded in Table 4, and the amounts obtained in this way by the prices shown in Table 3.

In deciding upon a cropping program, the number of acres of each crop that a given crew can handle and the extent to which different crops compete with and supplement and complement each other should be taken into account. (See budget, pp. 2 and 3.)

Section B: Production and disposal of crops

Crops	Production (quantity)	Disposal			
		For feed (quantity)	For seed (quantity)	For sale	
				Quantity	Value
Total					

List the crops again in the same order as on the preceding form, and enter the expected production as indicated in Section B. The production data may be obtained by multiplying the figures in the acre column of Section A by the crop yields listed in Table 4. The quantity of each crop that would be fed to livestock, used in the home and sold, should be indicated. The value of the quantities to be sold may be obtained by multiplying the quantities shown on this form by the prices shown in Table 3. If systems are to be compared that make available different quantities of products for home use, a value column headed "Used in the home" may be added. (See budget, pp. 2 and 3.)

Section C: Feeds and other expenses for livestock

Livestock	Number	Home-grown feeds		Purchased feeds			Other expenses	
		Kind	Quantity	Kind	Quantity	Cost	Kind	Cost
Total								

When a livestock program has been tentatively decided upon, list the different classes of livestock and enter the number of each opposite the class, as in Section C. Next calculate the amounts of home-grown and purchased feeds and other expenses. This may be done by taking the data in Table 5 and multiplying them by the numbers of livestock recorded on this form. The quantities of home-grown feed to be used should be compared with the quantities expected to be available for feed, shown on the preceding form. The value of the purchased feeds will be obtained by multiplying the quantities shown on this form by the prices recorded in Table 3. (See budget, pp. 2 and 3.)

It will often be advisable to work out two tables similar to this form, one showing how the feeds on hand at the beginning of the year are to be used and the other showing the feeds to be consumed by the livestock from the harvest season to the end of the year.

Section D: Production and disposal of livestock and livestock products

Livestock and products	Production (quantity)	Disposal			
		Fed to livestock (quantity)	Used in home (quantity)	Sales	
				Quantity	Value
Total					

List the livestock and livestock products in the same order that they are entered on the preceding form, as indicated by Section D. Data for the production column may be obtained by multiplying the figures in the "number" column, Section C, by the production data recorded in the last column of Table 5. The quantity to be fed, used in the home, and sold should be entered. The quantities to be sold, multiplied by the prices shown in Table 3, will give the data for the "value" column. (See budget, pp. 2 and 3.)

Section E: Summary of receipts and expenses

Receipts	Total value	Expenses	Total value
Total		Total	
Net returns			

Bring forward the "value" and "cost" totals on the four preceding forms and enter "value totals" under receipts, and the "cost totals" under expenses. In addition to the direct costs for crops and livestock brought forward, include on the expense side the estimates for labor to be hired, new machinery and repair, new fences and fence repair, building repair, taxes, farm insurance, and other overhead items. In some cases it may be advisable to include an estimate of sales from miscellaneous sources on the receipts side. The total expenses subtracted from the total receipts give the net returns. (See budget, pp. 2 and 3.)

Acres of crops, numbers of livestock provided in the plan for the coming year and in the long-time plan, expected receipts and expenses, and those actually obtained on your farm

Item	Last year	Long-time plan	Plan for coming year	Actual results, end of year
Crop:	*Acres*	*Acres*	*Acres*	*Acres*
Livestock:	*Numbers*	*Numbers*	*Numbers*	*Numbers*
Results:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Farm receipts				
Farm expenses				
Net returns				

At the beginning of the year, enter the acres of the different crops grown, the numbers of livestock kept, and the cash receipts and expenses for your farm for last year in one column as indicated above. Record the acres of crops and the numbers of livestock provided in the long-time plan for your farm, and enter the average receipts and expenses expected in the next column. In the third column, enter the acres of crops, the proposed numbers of livestock, and the receipts and expenses expected for the coming year. At the end of the year, enter in the last column the acres of crops actually grown, the numbers of livestock kept, and the receipts and expenses that actually resulted.

Forms to be used in making a farm budget as described in this bulletin may be obtained by writing the United States Department of Agriculture.

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FARMERS' BULLETIN No. 1564 rev.
Sept. 1938

FARM BUDGETING

THE EXPERIENCE of the last decade has demonstrated the necessity for planning the farm-production program with due regard for the probable financial results as well as for the physical possibilities. Changes in production are necessary and desirable. What changes? How much change?

A farm budget made out as described in this bulletin furnishes close approximations to the correct answer for an individual farm. Starting with things as they have been, each part of the farm business is examined in turn to learn what results are likely to follow from different production plans, each giving due consideration to prospective prices and to costs. The procedure recommended is a methodical application of common reasoning processes. Emphasis is directed, however, to the effect of possible changes on the business situations thus created.

Since this bulletin was first issued, action programs of the Government have reached directly or indirectly every farm business in the country. Each current program has offered to each farmer opportunities to be considered in his plans each year. The effect of any proposal on an individual farm business may be appraised by the method illustrated herein.

Washington, D. C. Issued July 1928; revised September 1938

FARM BUDGETING

By J. B. HUTSON, *agricultural economist, Division of Farm Management and Costs, Bureau of Agricultural Economics*

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WHAT IS A BUDGET?

A BUDGET is usually a plan for future using or spending. A farm budget is a plan for future use of land, man labor, horse work, equipment, and other resources. The budget has been used for many years by business farmers in this and other countries. It includes the plan for the system of farming for the coming year or period of years. It shows the crops to be grown, the livestock to be kept, and the estimated production, receipts, and expenses from the various sources. The budget is the businesslike way to work out and record farm plans. A budget for a 180-acre farm in western Kentucky is shown in table 1.

HOW A FARM BUDGET IS MADE

A budget for the coming year is made on the basis of the prices, crops and livestock requirements, and production expected for the year. The method of procedure to be followed in making a budget will vary with the system of farming being considered. The budget should show, in the simplest way possible, the expected crop and livestock production, the expenses, and the receipts for the particular system contemplated. The budget in table 1 is suggested for a diversified crop and livestock system of farming.

First, the acreages of the different crops contemplated and the crop expenses that appear probable should be recorded. (See sec. A of the budget on p. 2.[1]) The next step is to estimate the production of the different crops and how much will be needed for seed, how much will be fed to livestock, and how much will be sold. (See sec. B.) Then the number and kind of livestock to be kept should be indicated. Next the feed requirements and other expenses for the

[1] The budget shown here is for the year 1927 and was worked out in cooperation with the operator of the farm in March 1927. Available data as to the prices that had prevailed in the area during the past few years were analyzed, and a careful study was made of conditions likely to influence prices during the years just ahead. The prices of products to be sold and expense items in working out this budget are shown in table 3, page 17. Farm-accounting work had been done in the area during the three previous years, and these data had been carefully analyzed. The results obtained on two subexperiment-station fields located in the same type-of-farming area and livestock experimental data applicable to conditions in the area were reviewed. The crop yields and requirements used in working out the budget are shown in table 4, page 17. The livestock production and requirements used are shown in table 5, page 18.

livestock should be recorded. (See sec. C.) Often it will be advisable to divide this section into two parts, one showing how the feeds on hand at the beginning of the year are to be used and the other showing the feed crops to be consumed by the livestock from the harvest season to the end of the year.

TABLE 1.—*Budget for 180-acre farm in western Kentucky*

SECTION A—ACREAGE AND CASH EXPENSES FOR CROPS

Crops	Acreage	Seeds and plants		Other expenses		
		Quantity	Cost	Kind	Quantity	Cost
		Bushels	*Dollars*			*Dollars*
Corn	30	3				
Tobacco	8			Superphosphate (acid phosphate)	2,400 pounds	26.40
				Canvas	80 yards	4.00
				Arsenate of lead	40 pounds	10.00
Wheat	20	25		Superphosphate (acid phosphate)	4,000 pounds	44.00
				Twine	40 pounds	4.80
				Threshing	280 bushels	33.60
Soybean hay	5	3¾				
Soybean seed	5	3¾				
Mixed hay	30	(1)	96.30			
Total			96.30			122.80

SECTION B—PRODUCTION AND DISPOSAL OF CROPS

Crops	Production (quantity)	Disposal			
		Feed (quantity)	Seed (quantity)	Sales	
				Quantity	Value
					Dollars
Corn, bushels	840	793	3	44	30.80
Tobacco, pounds	8,000			8,000	720.00
Wheat, bushels	280		25	255	344.25
Soybean hay, tons	6¼	6		¼	4.00
Soybean seed, bushels	75		7½	67½	135.00
Mixed hay, tons	30	18		12	192.00
Total					1,426.05

SECTION C—FEEDS AND OTHER EXPENSES FOR LIVESTOCK

Livestock	Number	Home-grown feeds		Purchased feeds			Other expenses	
		Kind	Quantity	Kind	Quantity	Cost	Kind	Cost
					Pounds	*Dollars*		*Dollars*
Cows	6	Corn	84 bushels	Bran	1,500	26.25	Breeding fees	15.00
		Soybean hay	6 tons	Cottonseed meal	1,500	28.50	Miscellaneous	6.00
		Mixed hay	do					
Young heifers	4	do	2 tons					
Veal calves	3	Whole milk	1,500 pounds					
Sows with pigs	3	Corn	384 bushels	Tankage	1,500	52.50	Breeding fees	10.00
							Miscellaneous	2.00
Poultry	100	do	100 bushels	Meat scraps	500	20.00	do	2.00
		Skim milk	1,032 pounds[2]	Oyster shells	500	6.25		
Work horses	5	Corn	225 bushels				Shoeing	15.00
		Mixed hay	10 tons				Miscellaneous	5.00
Total		Corn	793 bushels					
		Mixed hay	18 tons			133.50		55.00

[1] Includes 150 pounds red-clover seed at 27 cents; 150 pounds orchard-grass seed at 14 cents; 90 pounds alsike-clover seed at 22 cents; and 60 pounds redtop seed at 25 cents.

[2] Taken from whole milk used in the home.

TABLE 1.—*Budget for 180-acre farm in western Kentucky*—Continued

SECTION D—PRODUCTION AND DISPOSAL OF LIVESTOCK AND LIVESTOCK PRODUCTS

Livestock and products	Production (quantity)	Disposal			
		Fed to livestock (quantity)	Used in home (quantity)	Sales	
				Quantity	Value
					Dollars
Whole milk ..... pounds	30,000	1,500	3,500	25,000	535.50
Veal ..... do	480			480	38.40
Pork ..... do	4,800		800	4,000	340.00
Old hens ..... do	200			200	36.00
Young poultry ..... do	150		100	50	11.00
Eggs ..... dozen	900		[3] 170	730	146.00
Total					1,106.90

SECTION E—SUMMARY OF RECEIPTS AND EXPENSES

Receipts	Total value	Expenses	Total value
	Dollars		*Dollars*
Crops (sec. B)	1,426.05	Crops (sec. A):	
Livestock and livestock products (sec. D)	1,106.90	Seed	96.30
		Other crop expenses	122.80
		Livestock (sec. C):	
		Feed purchased	133.50
		Other livestock expenses	55.00
		Other expenses (estimated):	
		Hired labor (threshing)	25.00
		Machinery (new and upkeep)	60.00
		Fence (new and upkeep)	30.00
		Buildings (repair)	100.00
		Taxes, insurance, and other overhead	125.00
Total	2,532.95	Total	747.60
Net returns	1,785.35		

[3] Includes 20 dozen eggs used for hatching.

At this point it will usually be advisable to compare the data showing the feeds on hand at the beginning of the year and crops to be grown for feed, with data showing the expected feed requirements. Generally, before a cropping program and livestock program are finally decided upon, adjustments will need to be made in first one and then the other until a livestock program adapted to a particular cropping program is found. When the kind and numbers of livestock contemplated have been recorded, the quantities of the livestock and livestock products expected to be used in the home and to be sold should be indicated. (See sec. D.)

The expected value of the crop and livestock products to be sold and the expected cost of the purchased feeds, seeds, fertilizers, and other materials should then be indicated. (See cost and value columns of secs. A, B, C, and D.) Next, these expected expenses and receipts should be brought together. (See sec. E.) In addition to the direct costs for crops and livestock, estimates should be included on the expense side for labor, new machinery and repair, new fences and fence repair, building repair, taxes, farm insurance, and other overhead items.

WHY A FARM BUDGET?

The purpose of working out farm budgets is to aid in learning in advance the returns that may reasonably be expected from the different systems of farming that may be followed, or the results that may reasonably be expected if changes are made in a particular one. Generally larger profits will result if plans for the system including probable expenses and receipts are carefully developed and compared with plans for other possible systems before the one chosen is actually put into operation. In this way many costly errors may be avoided. Specifically, the use of farm budgets carefully worked out has the following advantages:

Budgets help farmers more accurately to appraise different systems and practices so that the most profitable systems and practices may be decided upon. They offer a definite basis for comparisons between systems made up of different combinations of crop and livestock.

Budgets help to keep a good balance between crops in a crop system of farming and a good balance between crops and livestock in a crop and livestock system.

Budgets help to determine in advance how much seed, fertilizer, and other supplies are likely to be needed during the year.

Budgets help to determine how much feed will be needed for the livestock, how much must be bought, and how much is likely to be available for sale.

Budgets help in determining the amount of cash that will be needed to operate the farm, and when it will be needed, so that the necessary financial arrangements may be made.

Budgets help in determining the total net returns that may be expected so that living expenses, payments, or investments may be adjusted accordingly.

Stated more generally, budgets are advised because conditions affecting farm returns are continually changing. These changes are reflected in prices, crop yields, livestock production, and crop and livestock requirements.

Two kinds of price changes are of particular significance to farmers. First, there are price trends or long-time upward or downward movements of prices. These long-time upward or downward movements are usually different for different products. For example, after rising for 17 years, the value of horses on farms reached its high point on January 1, 1913, and then declined continuously to a low in 1932. The value of mules on farms, per head, increased until January, 1920, before declining. Milk cows on farms reached their highest value per head on January 1, 1929. Wheat prices worked up from a low season average price of 48.9 cents per bushel for the crop of 1894 to a high of $2.16 for the crop of 1919, and then were above $1 for 7 of the next 10 years. Though State and district prices tend to follow such long-time trends, there are often distinct differences in some years. Thus, Kentucky tobacco growers received less than the United States average price for tobacco of the crops of 1934 and 1935 but more for the crop of 1936, and dark tobacco has regularly sold for less per pound than Burley during the last decade.

Other price changes of interest to farmers are price cycles. The prices of many farm products tend to move upward for a period of years and then downward for a more or less similar length of time. For example, hog prices usually tend upward from 1½ to 2½ years and then downward for about the same length of time. For most other species of livestock the upward and downward movements are

for longer periods. There appears to be a tendency for beef-cattle prices to go up from 6 to 9 years and then down for a somewhat similar length of time. In the case of horses the upward and downward price movements tend to extend over periods of 10 to 15 years. The most important factor in determining the length of these upward and downward movements is the length of time required to expand or contract materially any enterprise after unusually high or unusually low prices are reached.

Price trends and cycles are due to developments that are world-wide in scope. Changes in the habits and tastes of people, in channels of trade, and in transportation costs and the opening up of new production areas all play their part in causing price trends. The adjustments in production plans that farmers make in response to prices are largely the cause of price cycles.

In addition to price trends and cycles the amounts of crops and livestock held over from one year to the next vary and have an influence on the prices of the following year. The amounts of different products that will be taken at given prices vary with industrial activity and related factors. As a result of these and other factors, farmers are continually facing new price situations.

On the production side new practices are developed for cultivating and harvesting crops and for feeding livestock, and these new practices result in different man labor, horse work, feed, and other requirements. The wheat binder, the corn binder, the tractor, the small combine, each has had or is having its influence on the amounts of labor needed in growing particular crops and on the net returns obtained. Crop yields are continually being affected by insect and crop pests. For example, the cotton boll weevil, San Jose scale, corn borers, Japanese beetles, chinch bugs, and grasshoppers have caused serious losses to producers in some years and are an annual threat to production, to be offset only by constant vigilance and appropriate control measures. Livestock have their parasites and diseases.

Many of these changes are more or less permanent in nature and may be known. Other developments may be anticipated with some degree of accuracy. Obviously such things make changes advisable in the crops to be grown and the livestock to be kept on a particular farm. The crops and livestock that will result in the largest returns at one time will not always give good results at some later time.

In their efforts to cope with these changed or new situations farmers are continually making adjustments in crops, livestock, and practices. Usually these adjustments are the result of comparisons of the returns expected from different systems and practices. Some of these comparisons are simple and easily made, and some are complex and involved. Some of them are crudely and imperfectly made, and others are carefully worked out.

These comparisons are often based upon facts taken from memory, and are made without the use of pencil or paper. Sound conclusions may be reached in this way in the case of simple comparisons, but most problems in present-day agriculture are too involved to make this method advisable. In highly commercialized farming, usually, a change in one enterprise makes changes desirable in several other enterprises. Then there is the ever-present tendency to give too

much weight to the prices, the yields, and the production that result from conditions more or less temporary in nature, and this tendency is likely to be more pronounced when the memory alone is depended upon. Generally, safer conclusions will be reached and larger profits will result from the farming operations if the facts considered are carefully organized and if judgments are completely formed and recorded and if the comparisons between enterprises and systems are carefully worked out. This involves the use of farm budgets.

WHEN TO MAKE FARM BUDGETS

December, January, and February are the budget-making months in most parts of the country, and in some sections March is used. These are the months when a farmer usually has the most time to do uninterrupted thinking. When the crops are harvested a farmer can usually find time to take stock, review the successes and failures of the past season, compare the results actually obtained with those expected at the beginning of the year, and make a budget for the coming year.

HOW TO USE THE BUDGET METHOD IN MAKING FARM PLANS

As suggested above, an important use of farm budgets is in reaching conclusions as to crops and livestock that are likely to prove most profitable under given conditions. In this connection it should be kept in mind that farming is a forward-looking undertaking and that plans should be made on the basis of conditions expected in the future. One should be as familiar as possible with the results of the past. However, the results of the past should be interpreted in the light of conditions expected in the future. This is what is attempted in making farm budgets.

One use of farm budgets is in finding the crops and livestock—the acres of each crop and the number of each kind of livestock—that will probably result in the largest returns during the coming year. Another use is in finding the crops and livestock that will probably result in the largest returns over a period of years. The former is usually considered the plan for the coming year and the latter the long-time plan or the system of farming.

MAKING PLANS FOR THE COMING YEAR

The kinds of crops and livestock should usually remain the same for a period of years, but it is seldom possible or advisable to plan to grow the same acreage of each crop or keep the same number of each class of livestock each year. If nothing else, variations in the number of livestock born, and crop failures of the previous year, will make this impossible in some cases and inadvisable in others. Then there are lines of production, like dairying or handling a breeding herd of beef cattle, that a farmer must grow into; they can not well be developed in a year. Furthermore, if a farmer makes a study of the conditions that influence prices he will usually be able to form more accurate judgments as to prices to expect during the coming year for at least some of the products than those of the past year or even the average for a period of years. It follows that

the plans for each year should be different, in at least some respects, from the plans for any other year.

A farmer who has definitely in mind a long-time plan should make a budget showing the returns expected and the prices that appear most likely to prevail during the coming year. If he has no long-time plan definitely in mind, perhaps the best starting place is with the crops and livestock of the previous year. In either case the next step is to make comparisons as to the changes in returns that appear probable if increases are made in the acreage of crops and the numbers of livestock for which relatively high prices are expected and decreases in those lines in which relatively low prices are expected.

Many possible alternatives may be eliminated or tentatively decided upon by these simple comparisons. For example, a farmer who is accustomed to growing wheat along with other crops may be considering whether it will be advisable to substitute barley for a part of the wheat. Suppose the cropping program calls for 60 acres of spring wheat, and the farmer is trying to decide whether to substitute barley for 20 acres of the wheat. Granting that the substitutions could be made without affecting other enterprises, he would need only to consider the costs, prices, and yields of these two crops. A method of working out a comparison of this kind follows:

Probable income from wheat:		
255 bushels (20 acres at 14 bushels less 25 bushels seed) at $1.35		$344.25
Threshing 280 bushels at 12 cents	$33.60	
Twine, 40 pounds at 12 cents	4.80	
Fertilizer, 2 tons at $22	44.00	
Total, threshing, twine, and fertilizer		82.40
Net income from wheat		261.85
Probable income from barley:		
445 bushels (20 acres at 24 bushels less 35 bushels seed) at 75 cents		333.75
Threshing 480 bushels at 10 cents	$48.00	
Twine, 45 pounds at 12 cents	5.40	
Fertilizer, 2 tons at $22	44.00	
Total, threshing, twine, and fertilizer		97.40
Net income from barley		236.35
Probable excess in favor of wheat		25.50

It will sometimes be advisable to attempt simple comparisons of this kind where three or more enterprises are involved. Usually, however, when changes are being considered that affect more than two enterprises and often when changes for only one or two are contemplated, the problem is too complex for such simple comparisons. Sometimes it may be advisable to consider the substitution of a crop that has different man-labor and horse-work needs or that requires attention at a different time of the year from the crop to be displaced. Such substitutions usually mean either more thorough or less thorough cultivation of other crops. Often changes may be considered that will mean more or less home-grown feed or a different ration for the livestock. In the case of involved changes of these kinds other complete budgets are recommended.

It will sometimes be advisable to work out several trial budgets each indicating the farmer's judgment as to the returns that may

reasonably be expected during the coming year from different combinations of crops and livestock. Each of these budgets should carry data similar to those suggested in table 1, pages 2 and 3.

It is important that each of these budgets be worked out on a similar basis. That is, a farmer should not use the prices, yields, and other production relations of the past years for one budget and then use those expected in the future for other budgets. Since systems of farming are planned for the future, the prices and production relations used should be those that are expected in the future. In some cases it may be advisable to take the feeding requirements and livestock production of the past year and work out a financial statement, using normal crop yields and expected prices. Whenever experience or available data warrant, however, it will be advisable to adjust the livestock data, as well as the yields, to a normal basis.

The budgets worked out in this way should then be compared. After taking into account the amount of risk involved under each, the changes each necessitates in livestock on the farm at the time, the changes from the crops of the past season, and the probable effect of each change on the returns of the following years, one of these budgets should be decided upon as the plan for the coming year. Budgets of this kind should be made at the beginning of each year.

BUDGETS WITH VARYING PRICES AND YIELDS

Even after a plan for the coming year has been carefully worked out, adjustments in this plan may be advisable during the year. Less favorable production may be obtained along some lines than were anticipated, and more favorable production may be obtained along other lines. Higher prices may be obtained for some products than were anticipated and lower prices for others.

In cases in which the prices contemplated for the crops and livestock vary widely from year to year, or in which the information to be used as a basis for judgments as to prices is meager, it may be advisable to work out different budgets for the crops and livestock decided upon for the year, and to use different prices, each being based upon a particular set of prices within the range of probability. That is, the expenses, receipts, and net returns that will probably result from a given combination of crops and livestock with different prices may be worked out.

In areas in which the yields of crops vary widely from year to year it may be advisable to work out different budgets for the same system, using the different yields which are within the range of probability.

Such budgets, worked out with varying prices and yields, will help a farmer to determine maximum and minimum expectations from his crops and livestock, and to anticipate possible adjustments that may be necessary during the year. For example, crop yields below normal may make it advisable to sell livestock with less finish or at lighter weights, or may make it advisable to reduce the number of one kind of livestock and increase the number of another. Or it may be well to make changes in the feeding plans during the year.

Prices and production can not be forecast with enough accuracy to make it unnecessary to be on the lookout for possible improvements

through adjustments of this kind. The more carefully a farmer has thought through these problems in advance the better prepared he will be to meet such conditions as they arise.

PLANNING A SYSTEM OF FARMING

Often prices or conditions on the farm may so change as to make it advisable to reorganize the farm completely and introduce a new system of farming or a system markedly different from the one that has been followed. For example, a farmer may be engaged in dairying; that is, in growing feed crops and selling dairy products, and conditions may be such as to make it advisable to consider feeding beef cattle and hogs. Or a farmer may be engaged in growing cotton along with a small amount of feed for the work stock, and conditions may be such as to make it advisable to consider dairying or some other kind of livestock farming.

In trying to decide whether a marked change of this kind will be advisable in the system of farming that is being followed, a farmer should first look about in his own community, and in other communities that have similar conditions, and consider the results that other farmers are getting from other crops and livestock. A system that has given good results on one farm may not give good results on another farm even in the same community, since no two farms are exactly alike, and may not give good results on the same farm under different conditions, but this general appraisal of other systems is a good preliminary move. From it a farmer should get a general idea of other crops, livestock, and systems that are adapted to his conditions.

It is at this point that the budget plan may again be used to advantage. The use of carefully worked-out budgets is the most accurate way to compare the various systems that may be considered. While the budgets to be used in this connection should be made on the yearly basis, they should be based upon average yields and production requirements and upon the average prices expected during the period of years just ahead. They should show the average of the acres of crops and the numbers of livestock, the estimated production, expenses, and receipts for the period. The period considered should be at least as long as the rotation contemplated. If special buildings or machinery are needed, which is often the case, a 5-year or 10-year period or even a longer period should be considered.

It will be advisable to study available information and to formulate judgments as to prices, crop yields, livestock production, and crop and livestock requirements, as described above, for such crops and livestock as appear to have possibilities on the farm that is being considered. Next, a budget similar to that suggested on pages 2 and 3 should be prepared for the present system. Following this, the farmer should consider desirable combinations of crops and livestock for other systems and work out budgets for them.

In deciding upon the acreage of the different crops and the numbers of the different classes of livestock to include in the systems that are being considered, the seasonal as well as the total man labor and horse-work needs of each crop and class of livestock should be kept in mind. It is generally advisable to consider only such combinations of

crops and livestock as can be taken care of by the men and teams that are likely to be available. If systems are to be compared with markedly different man labor and horse-work requirements, the cost of providing the added labor must be considered.

The budgets worked out in this way should be compared. In comparing the budgets of the different systems, each should be considered critically for the purpose of determining how well the principal crops are adapted to the area, the effect of each system upon the fertility of the soil, the kinds of markets that are available for each of the products to be sold, how nearly the feed crops provide a balanced ration for the livestock if the system includes livestock, how well the crops and livestock fit together, and how well the nonmarketable products, such as pasture, straw, stover, and skim milk are utilized with each. With these facts, and the returns that may reasonably be expected from each in mind, one of the systems should be selected as the system to be followed. Presumably this will be the system that, other things being equal, promises the largest returns on the basis of normal yields and production requirements and prices expected for a period of years.

It is not usually necessary to make comparisons of this kind, involving other systems of farming, each year. After a system has been decided upon it should be followed until conditions of the period or on the farm have undergone a marked change. A farmer should continually be on the alert, however, for new developments and should consider carefully the possibilities of other systems whenever conditions warrant.

KEEPING ACCOUNTS AGAINST A BUDGET

After a budget has been made an inventory should be taken, the expenses and receipts should be kept during the year, and at the end of the year the returns actually obtained should be compared with those contemplated in the budget. If a budget has been made for a period of years it may also be included in the comparisons. A method of recording data for these comparisons is shown in table 2.

Accounts provide material that is essential to a thoroughgoing analysis of the farm business as it has been operated in the past. They are valuable in helping to locate the strong and weak points of the system being followed. They aid in locating the leaks in the profits. For example, the crop yields and requirements of that year may be compared with those contemplated in the budget and with those obtained by other farmers. The returns for the feed consumed by the livestock may be compared with the returns contemplated in the budget and those obtained by other farmers. Accounts provide a basis for determining how the labor, building, machinery costs, and other expenses compare with those contemplated in the budget and those prevailing on other farms. Attention to such points makes economical production possible.[2]

[2] For more complete discussion of farm accounts, see the following bulletins:

LADD, C. E. A SYSTEM OF FARM COST ACCOUNTING. U. S. Dept. Agr. Farmers' Bul. 572, 15 p., 1914.

THOMSON, E. H. FARM BOOKKEEPING. U. S. Dept. Agr. Farmers' Bul. 511, 37 p., illus. 1912.

For method of analyzing farm business see: DIXON, H. M., and HAWTHORNE, H. W. A METHOD OF ANALYZING THE FARM BUSINESS. U. S. Dept. Agr. Farmers' Bul. 1139, 40 p., illus. 1920.

TABLE 2.—*Comparison of acres of crops, numbers of livestock contemplated, and expected receipts and expenses for long-time plan, and plan for coming year, with results actually obtained, 180-acre farm* [1]

Item	Last year	Long-time plan	Plan for coming year	Actual results, end of year
Crop:	*Acres*	*Acres*	*Acres*	*Acres*
Corn	30	30	30	
Tobacco	11	10	8	
Wheat	7	10	20	
Soybean hay	7	10	5	
Soybean seed			5	
Mixed hay	50	30	30	
Pasture	46	51	46	
Livestock:	*Number*	*Number*	*Number*	*Number*
Work stock	5	5	5	
Cows	2	10	6	
Young cattle	2	5	4	
Sows	1	3	3	
Other hogs	5	24	24	
Chickens	45	100	100	
Results:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Farm receipts	1,840	2,886	2,533	
Farm expenses	689	864	748	
Net returns	1,151	2,072	1,785	

[1] The operator of the farm whose returns last year and whose budgets for a period of years and for the coming year as shown above has been depending upon crops as sources of income. He plans in the future to combine some cash crops and dairying. One reason that the plan for the coming year differs from the long-time plan is that the operator considers it advisable to buy only 4 cows during the coming year and grow into dairying.

Accounts, if accurately kept and intelligently interpreted, may become the best source of information in helping to determine the production that may reasonably be expected to result from a particular practice, enterprise, or system of farming. In making farm budgets an opportunity is offered to use these accounting data in connection with experimental data and information on prices in planning future operations. Accounts help a farmer to localize and interpret experimental results in terms of conditions on the farm. This will be discussed further in a later section. Most State colleges of agriculture have account books suitable for recording inventories, expense, and receipts which they furnish at a small cost. Such books can usually be obtained from the county agent or by writing to the State college of agriculture.

INFORMATION NEEDED IN MAKING A BUDGET

The returns actually obtained in farming probably will not approximate the returns contemplated in a budget unless the prices, requirements, and yields used in making the budget approximate those that actually prevail. Those used in making the budget should represent the best judgment of the one doing the planning, as to the production and prices that may reasonably be expected for the particular farm and period, after considering all the information available. The information available that will be useful may be divided into two classes—that relating to prices and that relating to production.

PRICE INFORMATION TO USE

In order to plan for the coming year and at the same time to keep a permanent and profitable system of farming in mind, judgments must be formed as to prices expected for the coming year and for the period of years just ahead.

Average prices, price trends, and long-time demand changes must be known to form judgments as to prices for a period of years. In the case of prices for the coming year, in addition to the above, the facts as to supplies on hand, production in competing areas and countries, and demand changes likely to come about during the year are important. Such information is to be found in market-news reports, agricultural-situation reviews, and in agricultural-outlook statements issued by State and Federal agencies.

SOURCES OF PRICE INFORMATION

The following are the principal sources of information on prices:

Market news reports, issued by the Bureau of Agricultural Economics and distributed by mail, by radio, and through farm newspapers.

Average Prices Received by Farmers for Farm Products, mimeographed reports issued monthly by the Bureau of Agricultural Economics.

Crops and Markets, a monthly periodical issued by the Department of Agriculture.

Special commodity price studies, issued by the Bureau of Agricultural Economics and many of the States.

The Agricultural Situation, a monthly publication issued by the Department, and similar reports issued by several of the State colleges of agriculture and extension services.

Monthly mimeographed situation reports on individual commodities issued by the Bureau of Agricultural Economics.

Agricultural Statistics issued yearly by the Department.

Yearbooks of State departments of agriculture and State agricultural statisticians.

Annual agricultural-outlook reports, issued by the Department, and outlook reports, issued by State colleges of agriculture and extension services in many States.

Statistical bulletins issued by the Department.

MARKET NEWS REPORTS

The market news reports issued by the Bureau of Agricultural Economics and State departments of agriculture review the market situation for the principal farm commodities daily, weekly, and monthly during the year. These reviews are distributed by mail, by radio, and in weekly papers and farm papers.

Average Prices Received by Farmers for Farm Products, a mimeographed report, is issued by the Bureau of Agricultural Economics about the 29th of each month. It shows currently the average prices received by farmers for 42 farm products as of the 15th of each month; relative prices received by farmers for crops, livestock and livestock products, poultry and poultry products; index numbers of

prices received by farmers by groups of commodities and for all groups; estimated prices of 42 farm products currently by States; hog-corn ratios for the United States, the North Central States, and Iowa; indexes of prices paid by farmers for articles purchased, farm wage rate index numbers; and an index of the industrial wage level. There is a brief discussion of current changes in prices received by farmers.

CROPS AND MARKETS

Crops and Markets is the monthly publication of the Department which carries the principal statistics on crop and livestock production, movements, prices, and stocks, on products covered by the Department's work. It carries information as to the acres of crops planted and harvested, the condition of these crops during the year, estimates of the number of livestock on farms, the amounts of different products marketed and on hand, and other related information on crop and livestock production and prices. Copies of Crops and Markets may be seen in the office of county agents. The subscription price is $1 a year.[3]

SPECIAL COMMODITY PRICE STUDIES

In recent years the Department of Agriculture and some of the State colleges of agriculture have undertaken careful studies of the factors affecting the prices of specific farm commodities and thoroughgoing analyses of conditions confronting producers of certain commodities. A letter to the State college or extension service may bring you State bulletins relating to local studies

THE AGRICULTURAL SITUATION

The Agricultural Situation is a printed periodical issued by the Bureau of Agricultural Economics. It contains very brief summaries of the price and production situations for the more important farm products, and a few tables that enable the reader to keep up to date on the current agricultural situation. Brief articles dealing with current economic problems of agriculture are included. This publication is designed primarily for those who are interested in following the general situation of agriculture from a nontechnical standpoint. It may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at a subscription price of 25 cents a year. It is sent to all county agricultural agents. Many of the State colleges of agriculture issue similar reports, which may be obtained from the county agent or by writing to the State college of agriculture.

AGRICULTURAL STATISTICS

During recent years the Department of Agriculture has been publishing an annual volume entitled "Agricultural Statistics," which carries, among other things, a large amount of statistical information on prices such as formerly was published in the Yearbook. Copies may be obtained from the Superintendent of Documents, Washington, D. C., at 50 cents a copy.

[3] Payable in cash or money order to the Superintendent of Documents, Government Printing Office, Washington, D. C.

Most of the State departments of agriculture issue yearbooks, which carry much of the information for the particular State carried in the volume issued by the Federal Department and usually some additional information.

AGRICULTURAL OUTLOOK AND SITUATION REPORTS

Each year, usually in November, the Bureau of Agricultural Economics and many State colleges of agriculture, issue outlook reports discussing probable price trends of principal farm commodities during the coming year. To a certain extent this information is kept up to date by the individual commodity situation reports mentioned above. Farmers' prospective-plantings reports on the principal crops are issued in the spring. Reports on farmers' hog-breeding intentions are issued in June and in December. Similar reports for other livestock are issued from time to time. The Demand and Price Situation, issued about the 15th of each month, gives the condition of prices for leading agricultural products and factors that may soon influence these prices. These reports may be seen in the office of county agents or may be obtained by writing to State colleges of agriculture or to the United States Department of Agriculture.

STATISTICAL BULLETINS

The Department issues a series of statistical bulletins which give all pertinent statistics for the chief agricultural commodities. The series includes a group of four price bulletins, which tabulate the prices paid to producers for the chief farm products over a series of early years.

Of the sources of price information mentioned, the outlook and situation reports and the Agricultural Situation carry conclusions as to probable price trends during the months just ahead. Bulletins based upon special price studies usually carry conclusions for a somewhat longer period. The other sources mentioned carry data that are useful in making an analysis of the price situation of the principal farm commodities.

In reaching conclusions as to prices care should be exercised lest too much weight be given to those of the present or of the immediate past. It should be remembered that the prices of farm products fluctuate widely from year to year and that the changes are seldom uniform. Research studies made by the Department and the State colleges of agriculture show price cycles or fairly definite price trends or both for many farm products. For these reasons, as much time as possible should be given to the study of average prices, price trends, and market-outlook information and to the consideration of studies made by others before the prices to be used in making the budget are decided upon.

PRODUCTION INFORMATION TO USE

Generally normal or average crop and livestock requirements, yields, and production should be used in making a budget. The yields for crops and the production for livestock vary from year to year, but the variations depend largely upon such factors as temperature, rainfall, insect pests, and livestock diseases, which cannot be anticipated with any degree of accuracy. The best the farmer can do is to

review his own experience and such records as are available for his farm, study records and accounts showing the results on other farms and data showing the results of experiments in growing crops and feeding livestock, then consider all of these facts in the light of conditions on his own farm and make the best approximations possible.

An effort should be made to find out the yields of crops that may reasonably be expected from different quantities of seed and fertilizer and the quantities of these and other materials that will probably result in the largest returns, in the light of conditions on the farm and of prices that may reasonably be expected. An effort should also be made to ascertain the production that may reasonably be expected to result from different rations for each kind of livestock and the particular ration that will result in the largest returns, considering the home-grown feeds and pasturage available and the prices expected for feeds, livestock, and livestock products.

SOURCES OF PRODUCTION INFORMATION

Among the important sources of information on production are the following:

Records for the farm and similar records for the community.

County and State farm-production statistics.

Books, bulletins, and reports of the results of livestock-feeding and crop experiments.

Demonstrations showing the results of practices in the communities.

RECORDS FOR FARM AND COMMUNITY

Records of results obtained on one's own farm by adopting specific practices in crop and livestock production in the past are fundamental. If there are no formal, currently made records of the results following definite changes in conditions and practices, memory must serve. One cannot, however, expect an anticipated outturn unless the requisite conditions have been fulfilled.

In the development of the agricultural adjustment and other programs of the Department a great deal of information about yields and production under known conditions has been made available locally in connection with contracts and county planning-committee activities.

For many years thousands of farmers in different parts of the United States have kept records of their farming operations in cooperation with the State colleges of agriculture and the Department. These records are usually summarized and analyzed by the State and Federal agencies and the results made available in bulletins and reports. Such reports may be obtained from county agents or by writing to the State college of agriculture or to the Department of Agriculture.

COUNTY AND STATE FARM-PRODUCTION STATISTICS

Reports on yields, acreage, and production of commodities over a period of years are useful guides to the trends and the variations that are probable for a particular year. Agricultural Statistics, described above, shows State crop yields for several years. County crop yields are published by State departments of agriculture. Farm papers and local newspapers usually quote figures from official sources.

EXPERIMENTAL RESULTS

The technical problems of farmers have been studied intensively by the Department of Agriculture and the agricultural experiment stations in the States. As results have been reached the findings have been published. Experimental results applicable to crop and livestock production in most sections of the county are now available and may be obtained from county agents or by writing to the State colleges of agriculture or to the Department of Agriculture. Summaries and articles based upon these results are carried rather generally by newspapers and periodicals whose readers they interest.

DEMONSTRATIONS IN THE COMMUNITY

In most parts of the country, in cooperation with the county agent or local representatives of other government agencies, farmers conduct demonstrations of practices or lines of production other than those commonly followed in the community. The possibilities of the new practices under actual conditions may thus be observed before one undertakes contemplated changes. Successful farmers also are usually willing to discuss their practices and the systems they have worked out.

Of the sources mentioned, the publications which carry results of experiments are likely to be most useful in determining the yields that will probably result from the use of different fertilizers or other practices, and the livestock production that will probably result from different rations. One's own experience and records showing the results on other farms will be useful in localizing and interpreting the experimental data in terms of conditions on the farm and in determining the crop and livestock production that will probably result from the practices commonly followed in the community.

A careful study of production information, such as that described above, will provide a basis for conclusions as to the crop yields that are most likely to be obtained, the quantities of the different kinds of feeds normally required to produce 100 pounds of pork or to put 100 pounds of gain on steers, or to keep a cow or a horse a year. A similar study of the information mentioned and such other information as may be available on prices will provide a basis for conclusions as to the prices that are most likely to prevail during the coming year and during a longer period. A method of recording conclusions of this kind is shown in tables 3, 4, and 5, pages 17 and 18.

The analysis of these data and the formulation of judgments as to production and price relations that appear probable at a particular time constitute one of the preliminary yet essential steps in the budget-making process. Such an analysis provides a basis for adjusting the practices and enterprises to the economic conditions of the time.

FORMS FOR FARM-BUDGET MAKING

In the following pages a set of sample forms is shown. These forms illustrate a method of organizing facts that should be considered and the kinds of forms needed to work out a farm budget. The facts may be organized and a farm budget made by observing the following procedure:

First, list the products that appear to have possibilities as sources of income, as indicated by the products-to-be-sold column, table 3. Next list the different kinds of feed, seed, fertilizer, and other items that are to be used in getting these products, as indicated by the expense-items column alongside. Next, examine the data on average prices, price trends, and the market outlook for each of these marketable products, and examine the expense items. When as much time as practicable has been given to the study of the price situation, enter the prices that appear probable for the items that must be bought and for the products to be sold. Entries should show the prices expected during the coming year and the average prices expected for a period of years.

TABLE 3.—*Prices for products to be sold and expense items*

Products to be sold			Expense items		
Item	Expected average prices, next 5 years	Expected prices, coming year [1]	Item	Expected average prices, next 5 years	Expected prices, coming year [1]
Cash crops:	*Dollars*	*Dollars*	Feeds:	*Dollars*	*Dollars*
Wheat, per bushel	1.25	1.35	Bran per hundred weight	1.75	1.75
Tobacco, per pound	.11	.09	Cottonseed meal, do	2.10	1.90
Soybeans, per bushel	2.00	2.00	Tankage, do	3.50	3.50
Corn, do	.70	.70	Meat scraps, do	4.00	4.00
Mixed hay, per ton	16.00	16.00	Oyster shells, do	1.25	1.25
Livestock:			Fertilizer:		
Whole milk, per hundredweight	2.10	2.10	Acid phosphate, per ton	22.00	22.00
Veal, per pound	.08	.08	Seeds:		
Hogs per hundredweight	8.50	8.50	Red clover, per pound	.27	.27
Old hens, per pound	.18	.18	Orchard grass, do	.14	.14
Young poultry, do	.22	.22	Alsike clover, do	.22	.22
Eggs, per dozen	.22	.20	Redtop, do	.25	.25
			Miscellaneous:		
			Canvas, per yard	.05	.05
			Arsenate of lead, per pound	.25	.25
			Twine, do	.12	.12
			Threshing wheat, per bushel	.12	.12

[1] The prices in the "coming year" columns were used in making out the budget shown on pp. 2 and 3.

TABLE 4.—*Normal yields and production requirements for crops—per acre basis* [1]

Crops	Seed	Fertilizer and other materials		Yield
		Kind	Quantity	
Tobacco		Superphosphate (acid phosphate)	300 pounds	1,000 pounds.
		Arsenate of lead	5 pounds	
		Canvas	10 yards	
Corn	⅛ bushel			28 bushels.
Wheat	1¼ bushels	Superphosphate	200 pounds	14 bushels.
		Twine	2 pounds	
		Threshing	12 cents per bushel.	
Soybean hay	¾ bushel			1¼ tons.
Soybean seed	do			15 bushels.
Mixed hay	Red clover, 5 pounds; orchard grass, 5 pounds; alsike clover, 3 pounds; redtop, 2 pounds.			1 ton.

[1] The yields and production requirements shown here were used in working out the budget shown on pp. 2 and 3.

List the crops that are being considered for the farm as indicated in table 4. Next enter the yields and the seed, fertilizer, and other material requirements necessary to get these yields. The yields should represent one's best judgment as to normal expectations from the requirements shown and practices contemplated. Often it will be advisable to record two or more yields for a particular crop, each representing the production expected from a particular quantity of fertilizer, seed, or practice.

TABLE 5.—*Normal feeding requirements and production for livestock* [1]

Livestock	Home-grown feeds		Purchased feeds		Production	
	Kind	Quantity	Kind	Quantity	Kind	Quantity
Dairy cows, per head.	Corn	14 bushels	Bran	250 pounds	Whole milk	5,000 pounds
	Soybean hay.	1 ton	Cottonseed meal.	do	Veal [2]	80 pounds.
	Mixed hay	do				
Heifers, per head	do	½ ton				
Veal calves	Whole milk	500 pounds				
Hogs, 1 sow, 8 pigs.[3]	Corn	128 bushels	Tankage	500 pounds	Live weight	1,600 pounds.
Poultry (per 100 hens).	do	100 bushels	Oyster shells	do	Old hens	200 pounds.
	Skim milk	1,032 pounds	Meat scraps	do	Young poultry.	150 pounds.
					Eggs	900 dozens.
Work horses, per head.	Corn	45 bushels				
	Mixed hay	2 tons				

[1] The feed and other requirements and production shown here were used in working out the budget shown on pp. 2 and 3.

[2] The veal production shown is based upon the assumption that 1 veal calf weighing 160 pounds would be sold for each cow every other year.

[3] The requirements shown are based upon 8 bushels of corn and 31 pounds tankage per 100 pounds of gain.

List the different classes of livestock being considered as shown in table 5. Next enter the normal yearly feed and other requirements and production for each class of livestock. Often it may be advisable to record varying amounts of feed for a particular class of livestock and the production that will normally result from such feed, the feed requirements being based upon different rations.

Tables 3, 4, and 5, when carefully filled out, provide basic data to use in working out budgets for the different systems considered.

FORMS FOR THE FARM BUDGET

Section A: Acreage and cash expenses for crops

Crops	Acreage	Seeds and plants		Other expenses		
		Quantity	Cost	Kind	Quantity	Cost
Total						

When a cropping program has been tentatively decided upon, list the kinds of crops and acreage of each as indicated by section A. Data for the remainder of the form may be obtained by multiplying the figures in the acre column by the production-requirement data recorded in table 4, and the amounts obtained in this way by the prices shown in table 3.

In deciding upon a cropping program, the number of acres of each crop that a given crew can handle and the extent to which different crops compete with and supplement and complement each other should be taken into account. (See budget, pp. 2 and 3.)

Section B: Production and disposal of crops

Crops	Production (quantity)	Disposal			
		For feed (quantity)	For seed (quantity)	For sale	
				Quantity	Value
Total					

List the crops again in the same order as on the preceding form, and enter the expected production as indicated in section B. The production data may be obtained by multiplying the figures in the acre column of section A by the crop yields listed in table 4. The quantity of each crop that would be fed to livestock, used in the home and

Section C: Feeds and other expenses for livestock

Livestock	Number	Home-grown feeds		Purchased feeds			Other expenses	
		Kind	Quantity	Kind	Quantity	Cost	Kind	Cost
Total								

sold, should be indicated. The value of the quantities to be sold may be obtained by multiplying the quantities shown on this form by the prices shown in table 3. If systems are to be compared that make available different quantities of products for home use, a value column headed, Used in the home, may be added. (See budget, pp. 2 and 3.)

When a livestock program has been tentatively decided upon, list the different classes of livestock and enter the number of each opposite the class, as in section C. Next calculate the amounts of home-grown and purchased feeds and other expenses. This may be done by taking the data in table 5 and multiplying them by the numbers of livestock recorded on this form. The quantities of home-grown feed to be used should be compared with the quantities it is expected will be available for feed, shown on the preceding form. The value of the purchased feeds will be obtained by multiplying the quantities shown on this form by the prices recorded in table 3. (See budget, pp. 2 and 3.)

It will often be advisable to work out two tables similar to this form, one showing how the feeds on hand at the beginning of the year are to be used and the other showing the feeds to be consumed by the livestock from the harvest season to the end of the year.

Section D: Production and disposal of livestock and livestock products

Livestock and products	Production (quantity)	Disposal			
		Fed to livestock (quantity)	Used in home (quantity)	Sales	
				Quantity	Value
Total					

List the livestock and livestock products in the same order that they are entered on the preceding form, as indicated by section D. Data for the production column may be obtained by multiplying the figures in the "number" column, section C, by the production data recorded in the last column of table 5. The quantity to be fed, used in the home, and sold should be entered. The quantities to be sold, multiplied by the prices shown in table 3, will give the data for the "value" column. (See budget, pp. 2 and 3.)

Section E: Summary of receipts and expenses

Receipts	Total value	Expenses	Total value
Total		Total	
Net returns			

Bring forward the "value" and "cost" totals on the four preceding forms and enter "value totals" under receipts, and the "cost totals" under expenses. In addition to the direct costs for crops and livestock brought forward, include on the expense side the estimates for labor to be hired, new machinery and repair, new fences and fence repair, building repair, taxes, farm insurance, and other overhead items. In some cases it may be advisable to include an estimate of sales from miscellaneous sources on the receipts side. The total expenses subtracted from the total receipts give the net returns. (See budget, pp. 2 and 3.)

Acres of crops and numbers of livestock provided in the plan for the coming year and in the long-time plan; expected receipts and expenses; and those actually obtained on your farm

Item	Last year	Long-time plan	Plan for coming year	Actual results, end of year
Crop:	*Acres*	*Acres*	*Acres*	*Acres*
Livestock:	*Numbers*	*Numbers*	*Numbers*	*Numbers*
Results:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Farm receipts				
Farm expenses				
Net returns				

At the beginning of the year, enter the acres of the different crops grown, the numbers of livestock kept, and the cash receipts and expenses for your farm for last year in one column as indicated above. Record the acres of crops and the numbers of livestock provided in the long-time plan for your farm, and enter the average receipts and expenses expected in the next column. In the third column, enter

the acres of crops, the proposed numbers of livestock, and the receipts and expenses expected for the coming year. At the end of the year, enter in the last column the acres of crops actually grown, the numbers of livestock kept, and the receipts and expenses that actually resulted.

Forms to be used in making a farm budget as described in this bulletin may be obtained on request from the United States Department of Agriculture.

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